Instructional Improvement Systems
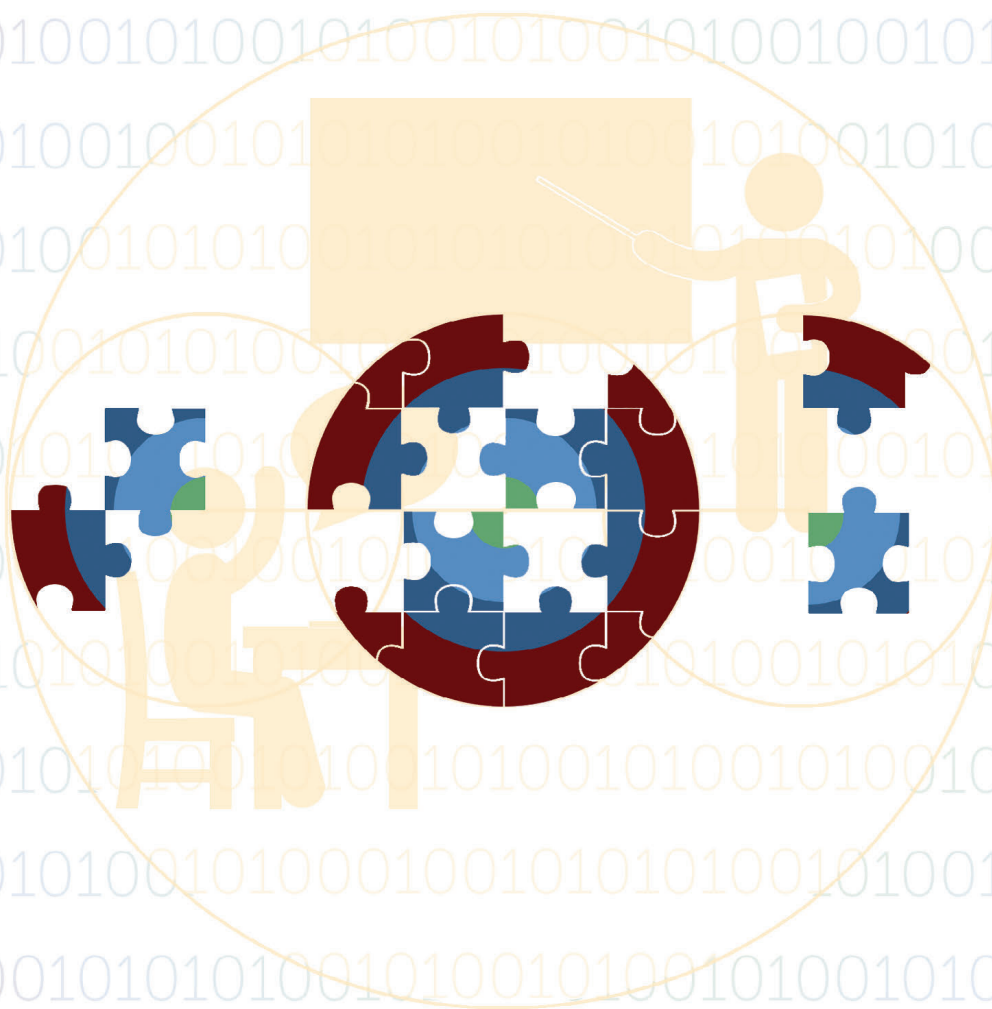
Planning and Implementation Guide

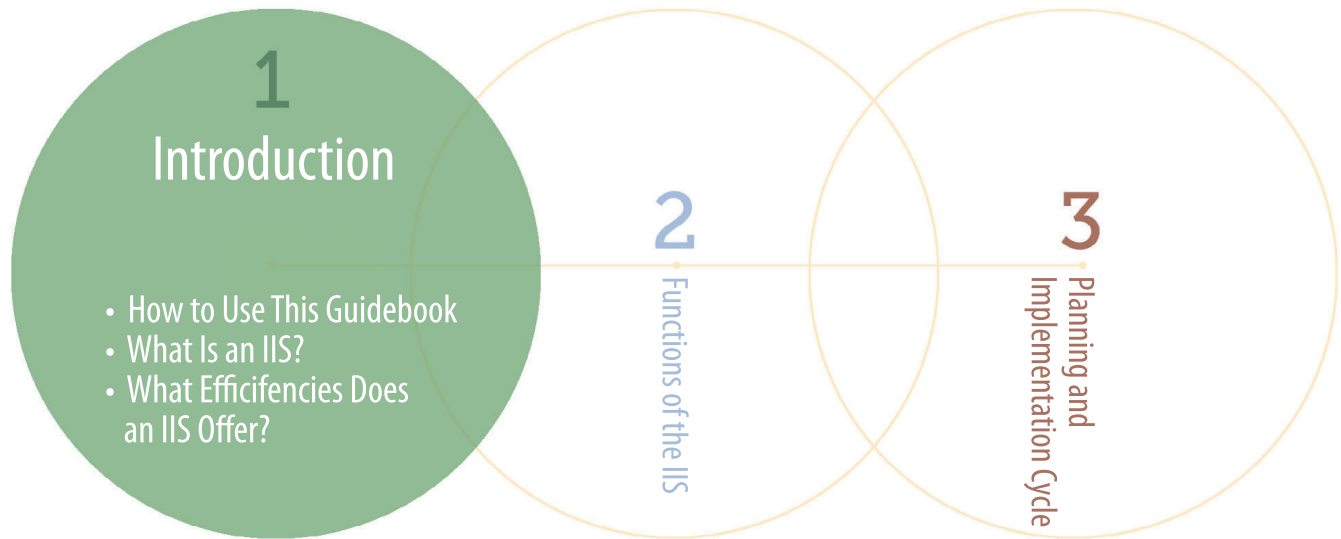June 2014

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Introduction

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How to Use This Guidebook

This guidebook is intended for the State education agency (SEA) managers and program leads who will work to define and implement an instructional improvement system (IIS) that attracts high rates of adoption by educators and students. An IIS relies heavily on "consistent instructional processes," defined as the sequences of tasks performed that constitute and support instruction and learning. As a result, much of this guidebook is dedicated to the development of coherent processes across SEA programs and local educational agencies (LEAs) working to plan and implement an IIS.

Section 1 briefly describes an IIS, discusses its benefits and walks through a theoretical yet comprehensive IIS model that fully integrates teaching and learning systems and reflects IIS functions typical of an SEA. Its purpose is to define an IIS and provide readers with a reference point for subsequent sections of this guidebook.

Section 2 is organized into a seven-step planning and implementation cycle that will guide SEAs in the development of their own IIS models. The cycle begins with setting the agency's IIS vision and then translates that vision into a series of strategic and operational

activities to achieve the agency's goals, and monitor and improve instructional effectiveness. The actual experience of SEAs is referenced to provide real-world examples of best practices in IIS planning and deployment.[1]

> Instructional improvement systems mean technology-based tools and other strategies that provide teachers, principals, and administrators with meaningful support and actionable data to systemically manage continuous instructional improvement, including such activities as: instructional planning; gathering information [through assessments] …; analyzing information …; using this information to inform decisions on appropriate next instructional steps; and evaluating the effectiveness of the actions taken. Such systems promote collaborative problem-solving and action planning; they may also integrate instructional data with student-level data such as attendance, discipline, grades, credit accumulation, and student survey results to provide early warning indicators of a student's risk of educational failure.
>
> U.S. Department of Education
> Race to the Top Executive Summary[2]

Reform Support Network

What is an Instructional Improvement System?

An IIS is a system, based in technology, which provides data to enable teachers, principals and other administrators to manage continuous instructional improvement. An IIS offers a common technology platform with one user interface across multiple systems and navigational paths to deliver the right information at the right time to the right people for the improvement of instruction.

An IIS initiative can shift the SEA's focus from managing separate programs to overseeing a comprehensive model of learning that integrates and coordinates formerly distinct programs in the service of instructional improvement.

What Efficiencies Does an Instructional Improvement System Offer?

From the perspective of SEA leadership, the deployment of an IIS may not only affirm the agency's instructional service mission and improve instructional outcomes, but also introduce significant cost-savings and other efficiencies as well. For many SEAs, the planning and implementation of an IIS is their first effort at creating a comprehensive, unified set of instructional resources to support teaching and learning in a digital environment.

In most States, teachers and other stakeholders must currently memorize an array of unrelated user names, passwords and Web addresses, and navigate systems with unique navigational structures. The current state of most educational information systems makes it difficult for teachers and other stakeholders to receive the maximum benefit from their information systems, despite the fact that other industry organizations

One State's IIS Vision

The Continuous Instructional Improvement Technology System (CIITS) will connect standards, electronically stored instructional resources, curriculum, formative assessments, instruction, professional learning and evaluation of teachers and principals in one place, thereby improving instructional outcomes, teacher effectiveness and leadership.

–Terry Holliday, Ph.D., Commissioner, Kentucky Department of Education

have used technology to dramatically improve their outcomes and efficiency. Inefficiencies in education systems waste the time of our most valuable resource—teachers—and rob students of instructional time with them.

The digitization of information and communication increases the potential for teachers and others to share best practices—such as lesson plans—and work together in virtual environments to improve the quality of these materials. These new IIS platforms for collaboration allow educators to improve instruction and free them to spend more time instructing students and less time in meetings. It also helps to identify resources that can be personalized to fit an individual student's needs.

The IIS also supports communication between parents and teachers. For example, as online information becomes more robust and longitudinal, parents can play an expanded role, reinforcing concepts covered in school and guiding their students toward online resources that have the capacity to assist where they struggle and enrich understanding where they already achieve well.

Section 2. The Functions of the Instructional Improvement System
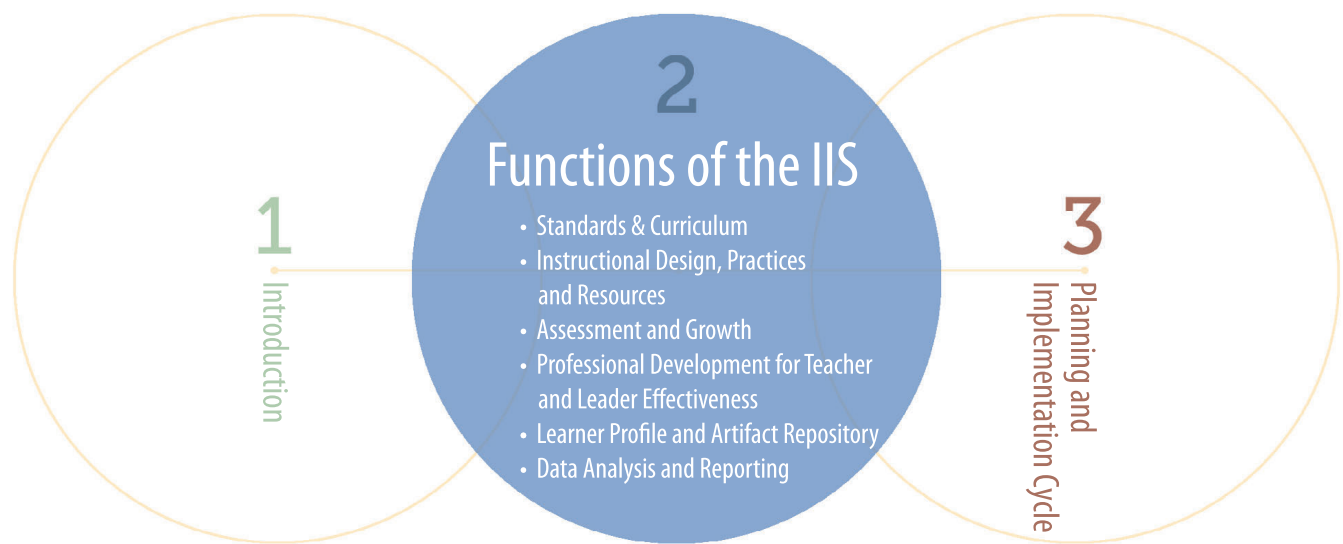
This guidebook uses a comprehensive IIS model to represent the most common sets of system functions developed by SEAs. Figure 1 below depicts a theoretical SEA IIS with a vision of a fully integrated teaching and learning system and reflects IIS functions typical of SEAs. This model is utilized throughout this guidebook as a reference point, but readers should note that each SEA creates its own vision for the IIS, so the environment with which the reader is familiar may differ from this model.

Figure 1. Instructional Improvement System Model and Functions
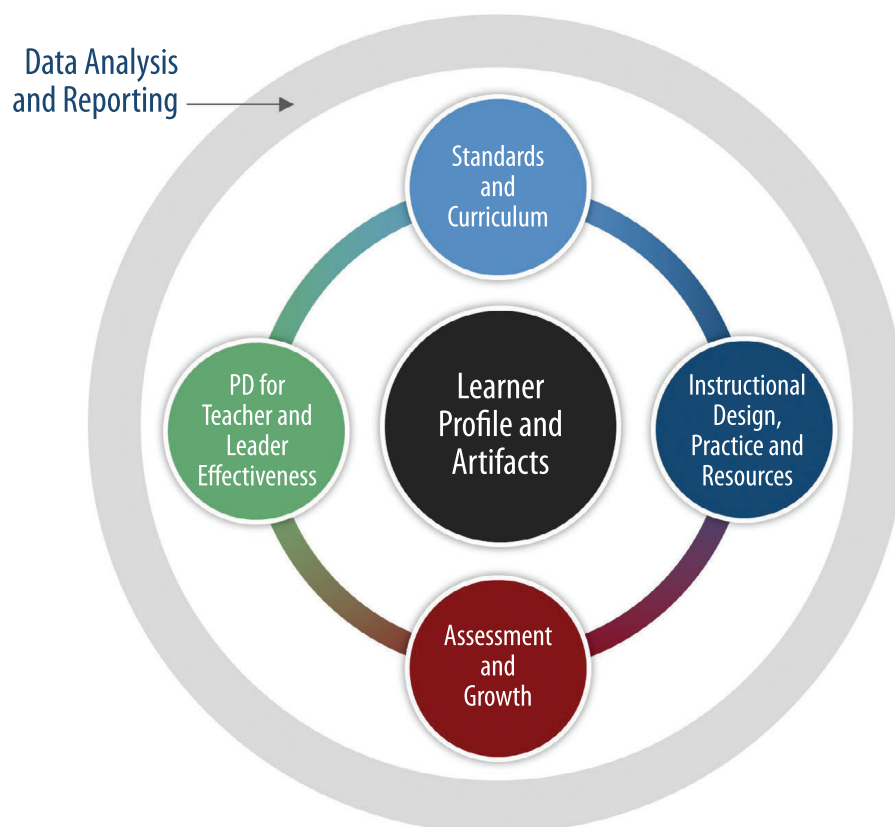
This IIS model includes five core instructional functions surrounded by a data analysis and reporting function that supports the others. Each function contains a set of processes and data that are well-defined and agreed upon during the IIS visioning process.

Standards and Curriculum

The standards and curriculum function of the IIS model supports the online management and electronic sharing of standards among user groups. This function focuses on the ability to manage multiple sets of standards in a variety of hierarchies, terminology and structures. Metadata mapping capacity supports alignment of instructional materials across standards and curricula, between standards and assessment items and between standards and professional development. The system supports the alignment of curriculum across grade levels and subjects, including the identification of instructional gaps and redundancies to ensure that all standards are taught at appropriate grade and skill levels. The system provides tools for curriculum design, development and mapping and the identification, documentation and exchange of best practices.

Instructional Design, Practice and Resources

The instructional function of the IIS model offers teachers the ability to electronically develop and manage instructional materials for each course they teach, supporting differentiated instruction for classes, groups or individual students. Teachers can create lesson plans by selecting available units, objectives or activities and assigning them to a group of students. This function can also allow teachers to search for lesson plans by various criteria, including standard, course, grade, discipline, objective, theme and unit.

Assessment and Growth

The assessment and growth function of the IIS model has the capacity to support instructional staff in the creation, alignment, delivery and management of multiple types of assessments and assessment items in an electronic environment. Assessment types supported can include formative, interim, benchmark and end-of-course assessments. The module can analyze student and class strengths and weaknesses by standard or learning objective and recommend instructional materials as supports or enhancements from an SEA curriculum repository.

Professional Development for Teacher and Leader Effectiveness

The professional development for teacher and leader effectiveness function of the IIS model offers the capacity to develop teacher performance management plans and associated professional development plans, incorporating data from the IIS system that enables linking and aligning staff development with specific improvement areas such as curriculum, assessment and instructional materials development. This feature allows teachers and leaders to address gaps in their professional skills. The IIS can incorporate data from evaluation systems through online observation reports, student growth reports submitted by teachers and surveys completed by students, peers and parents. The IIS can deliver professional development online and manage registration and approval. The IIS can also track certifications and credits obtained and maintain a comprehensive data set of newly acquired teacher and leader proficiencies along with the rubric used to assess teacher quality.

Learner Profile and Artifact Repository

The learner profile is central to the IIS design, storing learner demographics, plans, assessment results and portfolios. (Both students and teachers are defined as learners within the IIS.) The learner profile provides a single source of information regarding all learner interaction with instruction, including curriculum taught and program participation, and presents this information longitudinally and graphically for ease of use and interpretation. The profile can store work samples and other evidence of competency as the learner completes course work with different educational providers during their education, from

early education through postsecondary. For those who enter the educational system as instructors and leaders, the learner profile can also act as a repository for teacher and leader certification and professional development. Data may originate in other systems, such as a student information system or an exceptional children system, and be transported into the IIS learning profile. However, many SEA information system architectural plans consolidate program-specific systems into a small number of robust data sets such as the learner profile. Users can retrieve stored work samples with customizable search criteria.

Within the learner profile, individualized learning plans can be created for each learner and used to establish goals specific to the learner and capture evidence of goal achievement and competency. Information on student styles, interests, career goals and previous achievement outcomes can enable students and their instructors to individualize instruction to the student's needs and interests. The individualized learning plan functionality enables students to become more self-directed and empowered, reporting their achievements against established goals and identifying educational resources to assist in mastering concepts specific to their plan. Given the nature of data and individualized information collected the importance of data privacy and security can not be stressed enough. SEAs must develop and adopt data security policies that comply with state and federal laws (see the section entitled "*Protecting Data Privacy*" on page 25 for more information).

Data Analysis and Reporting

The data analysis and reporting function allows users to query data within the IIS, producing customized reports that can be electronically distributed or presented to user groups. Other modules of the IIS model system present the most commonly accessed information in graphically rich formats through portals and dashboards specific to user needs. The data analysis and reporting module differs in that it is designed to gather more complex or customized sets of information for purposes that cannot be met by preformatted dashboards.

Section 3. The Planning and Implementation Cycle

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Introduction

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Planning and Implementation Cycle

- Step 1: Create the Vision
- Step 2: Plan the Strategy
- Step 3: Align the Agency
- Step 4: Design & Plan Instructional Processes
- Step 5: Do the Work
- Step 6: Review Results
- Step 7: Analyze and Recommend
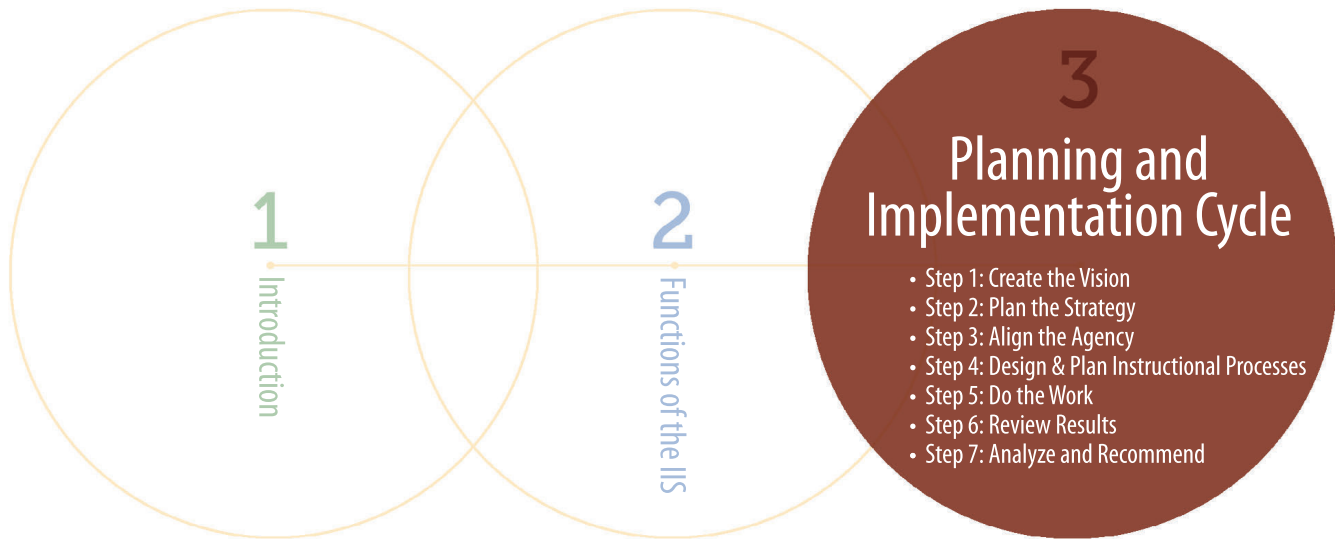
The planning and implementation of an IIS is a complex, comprehensive undertaking that involves the entire State educational system and every agency unit and function related to instruction. Coordination and effective communication across all stakeholders, especially classroom and instructional leadership, are necessary to develop an IIS that positively affects instruction and that users find helpful. A formal planning cycle organizes the agency around a common purpose, and fidelity to the activities in that cycle can create organizational coherence across SEA programs, support roles and organizational units. In addition, each unit within the SEA often has its own planning cycle. Step 3 of the planning cycle—the alignment process— coordinates these unit plans.

The cycle presented here offers a framework for planning an IIS initiative. This guidebook does not propose that SEAs abandon their current planning processes for this framework, which is offered as a reference and to communicate the importance of comprehensive planning tools to effective design and deployment of an IIS. The planning cycle presented here is based on the book *The Execution Premium*[3] and adapted by the authors to an SEA environment for IIS planning and deployment.

Strategic and operational planning, which underpin much of this guidebook, are subjects for which an extensive library of guidance and resources exists. This guidebook provides a synopsis of these resources framed in terms of their application to an IIS deployment. Readers are encouraged to reference other works, such as the **Baldrige Performance Excellence Center Criteria for Education**,[4] for other perspectives on planning and adaptation of this material to their environment.

Figure 2 depicts the key steps of the planning and implementation cycle. Appendix A includes a checklist for these steps.

Figure 2. Planning and Implementation Cycle

1 Create the Vision

2 Plan the Strategy

3 Align the Agency

Internal Operations

4 Plan Instructional Processes

5 Do the Work

Initiate, Plan & Design › Execute › Transition

Monitor

Implementation via Project Management

Internal Results

6 Review Results

7 Analyze and Recommend

Cascade Goals

(Linked *to* LEAs and schools)

Aggregate Results

(Linked *from* LEAs and schools)

Reform Support Network

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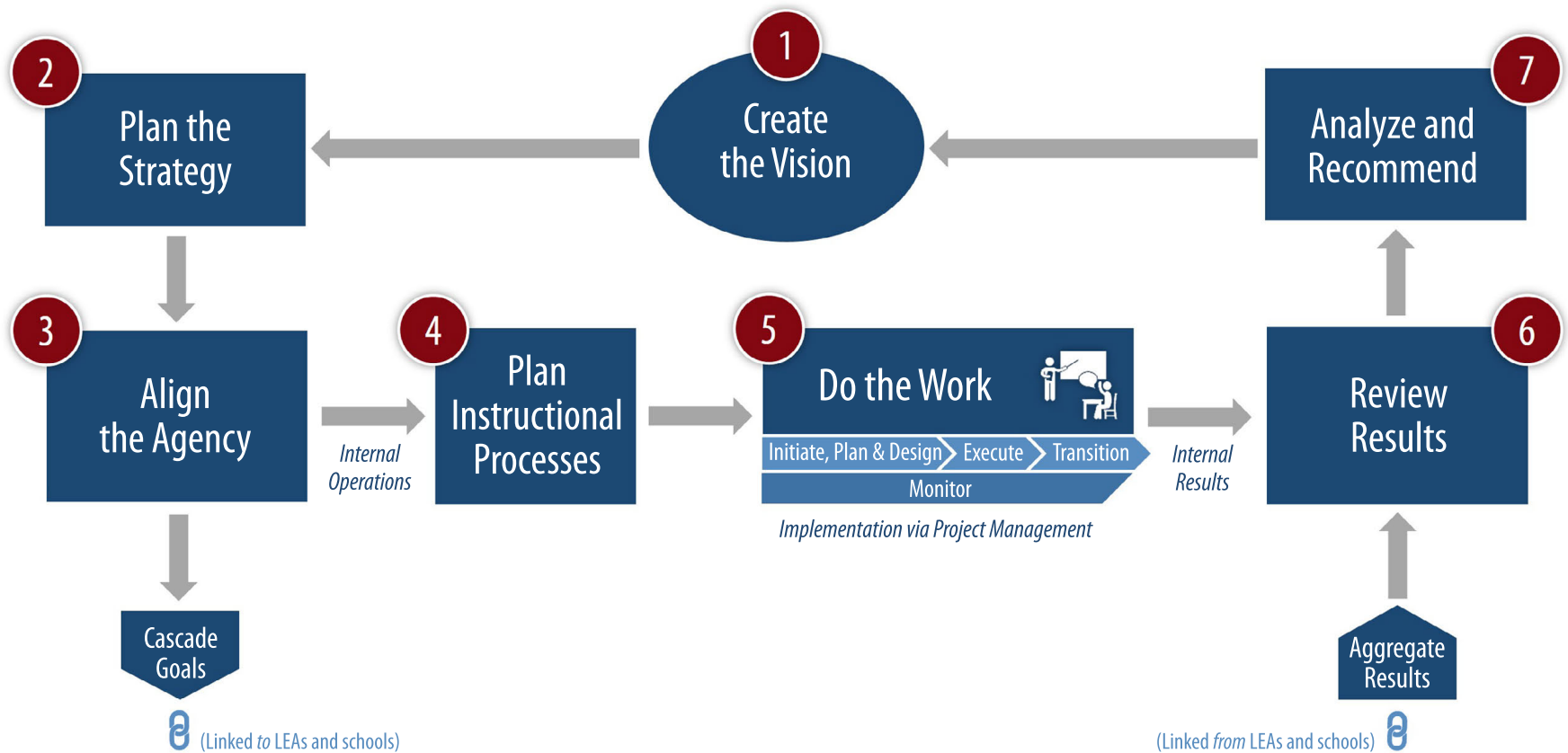
Step 1: Create the Vision

The first step in planning a system as complex and influential as an IIS is to create a common vision across the SEA regarding what the system will do and how it will assist users in fulfilling their duties. The vision facilitates teamwork among staff members and agency units as they work toward a common end result, and it enables the development of coherent and aligned work processes. The vision is a statement that describes the desired state that the agency will reach in the future. Ideally, the vision includes measures to indicate the achievement of the vision and benchmarks along the way. Appointing an instructional leader to sponsor the IIS vision then helps to ensure that progress is monitored and appropriate steps or revisions are taken when needed. When planning an IIS, SEAs have found that it is important for the program areas to develop a common teaching and learning process as part of the shared vision. This step includes documenting the support the IIS will give to that process. Elements to include in the visioning process include understanding instructional perspectives and identifying key stakeholders.

Instructional Perspectives

An IIS is based on the instructional perspectives adopted by an agency to govern instructional planning and decision making. For example, instructional perspectives could include a focus on one or more of the following:

- Development of rigorous standards and curriculum

- Engaging learning options for students through instructional design, practices and resources

- Supporting effective teachers and school leaders

- Aligned and meaningful assessments

- Data driven decision-making, analysis and reporting

Step 1 Checklist

✓ Develop a clear, well-communicated IIS vision that fits within the broader vision of the SEA and LEAs.

✓ Appoint an instructional leader to sponsor the IIS.

✓ Establish instructional perspectives as the foundation of the IIS vision.

✓ Ensure that the needs of key stakeholders drive IIS planning, design and implementation.

The agency may explicitly state its instructional model or imply the model through its decision-making practices. A formal, documented SEA instructional model informs the design or selection of the IIS. The instructional model selected matters less than the principle of adopting a single model for the agency and building consensus across all its programs and instructional staff members regarding its centrality as the instructional framework that is the foundation for the IIS design.

Key Stakeholders

A key consideration in IIS planning is the anticipated impact of the system on the instructional effectiveness of the people who will use it. This guidebook defines a stakeholder as an individual or group directly affected by an agency's actions.[5] When creating the

Step

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> All North Carolina students, parents and educators will have equitable access to information and resources they need to make ongoing decisions about individualized teaching and/or learning.
>
> —Public Schools of North Carolina IIS Vision

vision for an IIS, a thorough review by the SEA of the stakeholders helps frame their instructional roles as well as system features that may be desirable. Stakeholders commonly considered in IIS planning include teachers, students, parents, principals, district superintendents, SEA program leads, trustees and legislators. In creating a vision, it is essential that the SEA collaborate with LEAs and schools to clearly define their roles, their relationships, the services each will contribute and how teaching and learning will occur.

An effective IIS system presents customized information for each type of stakeholder based on their specific needs to maximize their capacity to improve student learning. System value, as perceived by each stakeholder group, is the result of the capacity of the IIS to help them perform their jobs. By extensively analyzing user needs before initiating system development, SEAs ensure that those needs can drive system design and configuration.

Appendix B contains a table of stakeholders with brief narratives about the common impact of an IIS on their activities. See Appendix C for a graphic depicting Hawaii's IIS vision and Appendix D for North Carolina's articulated IIS vision.

Step 2: Plan the Strategy

With the vision in place, the SEA's next step is to plan an agency-wide strategy to deploy and operate the IIS. Strategy transforms the vision into a set of strategic objectives with measures of progress and targets. Measurable common objectives enable each governing entity, agency unit and staff member to align their roles and monitor their contributions. This step is particularly critical for IIS planning and deployment because the functionality of the IIS must fit into and support each agency unit responsible for improving instruction and student outcomes. Prior to IIS deployment, these units may be loosely aligned, with each taking a slightly different path toward achieving their planned outcomes.

Planning strategy includes identifying the agency's "do wells"[6]—the few essential activities that the agency must master if it is to achieve its strategic objectives. Examples of "do wells" are the alignment, digitization and continuous improvement of key instructional processes, such as lesson plan development and professional development. The complexity of supporting an IIS may also require the SEA to review and upgrade its information technology (IT) governance structures.

Step 2 Checklist

✓ Translate the vision into strategic objectives and measures of progress and targets.

✓ Identify the few critical activities that the SEA must do well to achieve the objectives.

✓ Examine all SEA and LEA program areas that affect instruction.

SEAs may use program maps to organize their IIS strategy work, such as the map created by North Carolina to guide its IIS development (see Figure 3). Developing such a visual clearly organizes SEA resources and communicates the system's capabilities and agency roles to stakeholders and system operators, allowing for the identification of gaps or potential redundancies.

Figure 3. North Carolina Program Map

ACRE — Accountability and Curriculum Reform Effort in Response to *A Framework For Change*
PUBLIC SCHOOLS OF NORTH CAROLINA State Board of Education | Department of Public Instruction

PROJECT MAP 2010-11

Newer ACRE work streams connecting directly with teachers, leaders, parents and students

Tools and training, blending online and face-to-face learning experiences.

Professional Development

Communication & Change Management

Diverse communication strategies that memorably inform all stakeholders esp. students, parents, teachers, principals.

Ongoing central work to revise standards, assessment and accountability

Standards

College and career-ready standards. A new set of academic standards benchmarked against the best national and international expectations.

Assessment

Summative
Benchmark
Formative

A **comprehensive assessment system** with a focus on using assessments to improve instruction and fairly assess learning and instructional effectiveness.

Accountability

A **revised model** that includes measures of post-secondary readiness, robust, fair growth measures, revised reporting functions and motivates behavior that improves student outcomes.

Newer work to deliver new standards, assessments and teaching tools

Instructional Improvement System (IIS)
User-friendly online platform to house and deliver teacher tools

Newer work to build LEA capacity to implement online

Instructional Technology and Infrastructure Initiatives

Source: Collaborative Conference for Student Achievement, Accountability and Curriculum Reform Efforts in Response to A Framework for Change, http://www.ncpublicschools.org/docs/academicservices/conference/2011/presentations/accountability.ppt.

Planning the IIS involves a high level review of how the IIS will integrate with program areas that affect instruction, including information systems and organizational processes within both SEAs and LEAs. Step 5: Do the Work, uses this review to create a detailed plan for the IIS. An education enterprise architecture (EEA) framework may support this work at both stages.[7] An EEA framework is useful in identifying an IIS strategy to define the SEA's current state, the future state that it hopes to achieve through IIS deployment and the gaps between current and future states. Current and future states document (a) the processes through which the organization conducts its work, and (b) the technology infrastructure that digitally supports those processes. The current state assessment encompasses the program areas and the strategies and processes of the SEA, LEAs and schools that the IIS is intended to serve. Documentation of the current state is not as detailed as future state documentation and relies on existing materials. The goal is to gather and analyze only the information that will inform development of a roadmap for moving toward the future state, while minimizing risk.[8] The level of detail will depend on how much relevant documentation exists, and the extent to which current elements—such as business processes, data and applications—are likely to carry over into the future state.

After documenting the current and future states, the SEA conducts gap identification, defined as the process of determining the differences between the current state and the future state IIS strategy. The gap identification is fundamental to defining the level of effort required to implement the IIS. Gap identification covers organizational structures, staffing resources and budgets. It identifies not only the absence of a process or systems, but also what may require revision, consolidation or elimination to implement the IIS. Identifying and analyzing the gaps establishes a foundation for aligning the agency to the IIS vision and strategy. Resource constraints and political factors make it likely that the SEA won't address all the gaps, but documenting them ensures a comprehensive view of the issues to be dealt with if the SEA is to fully realize its IIS vision and strategy.

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Step 3: Align the Agency

Align Objectives and Goals

Once the agency has translated the IIS vision into its strategy (objectives, measures and targets), it is time for alignment. Bringing the SEA into alignment requires each program and support area affected by the IIS initiative to define its objectives and goals for the effort. The work of alignment incorporates not only the SEA, but also the LEAs, schools and especially teachers who are essential to successful IIS implementation. One key difference between having a great plan and accomplishing it is the vertical and horizontal alignment of all the agencies, programs and schools involved, and all the instructional roles and tasks performed by their staff members (see Figure 4). If the SEA has established an IIS governance team as part of its strategy development, the governance team could lead the alignment. Doing so is the first step towards defining their roles and responsibilities within the IIS processes, further described in Step 4.

Define Key Metrics

Establishing, communicating and aligning key metrics (measurements of performance) across the agency are an important part of ensuring everyone in the agency understands the measurable goals of the IIS and their responsibility for its success. Examples of key metrics that the IIS team might establish are the number of active system users at the end of the school year, or the average number of times users log into the system. The team establishes an agency-wide number they plan to achieve. Then the team reviews the deployment schedule and assigns a goal for the active system user metric to each agency unit in the deployment schedule. The sum of the assigned goals must equal the agency goal. As the deployment progresses, the team monitors the number of active users and resources deployed to those LEAs and schools not achieving the metric goal.

Step 3 Checklist

- ✓ Vertically and horizontally align the objectives and goals—and associated measures and targets— of the IIS for each agency, program area and key role involved.

- ✓ Define key metrics (in line with the measures created in Step 2) to gauge success for each organizational unit and each individual in a key role.

- ✓ Identify the primary instructional processes that the IIS will support.

- ✓ Allocate the necessary resources (fiscal and human) to support the objectives and processes.

The team can individualize metrics to the organizational unit and aggregate and link among them. For example, the team may assign goals for a metric of the number of teachers trained on the IIS to schools, and assign a metric goal to the IT department.
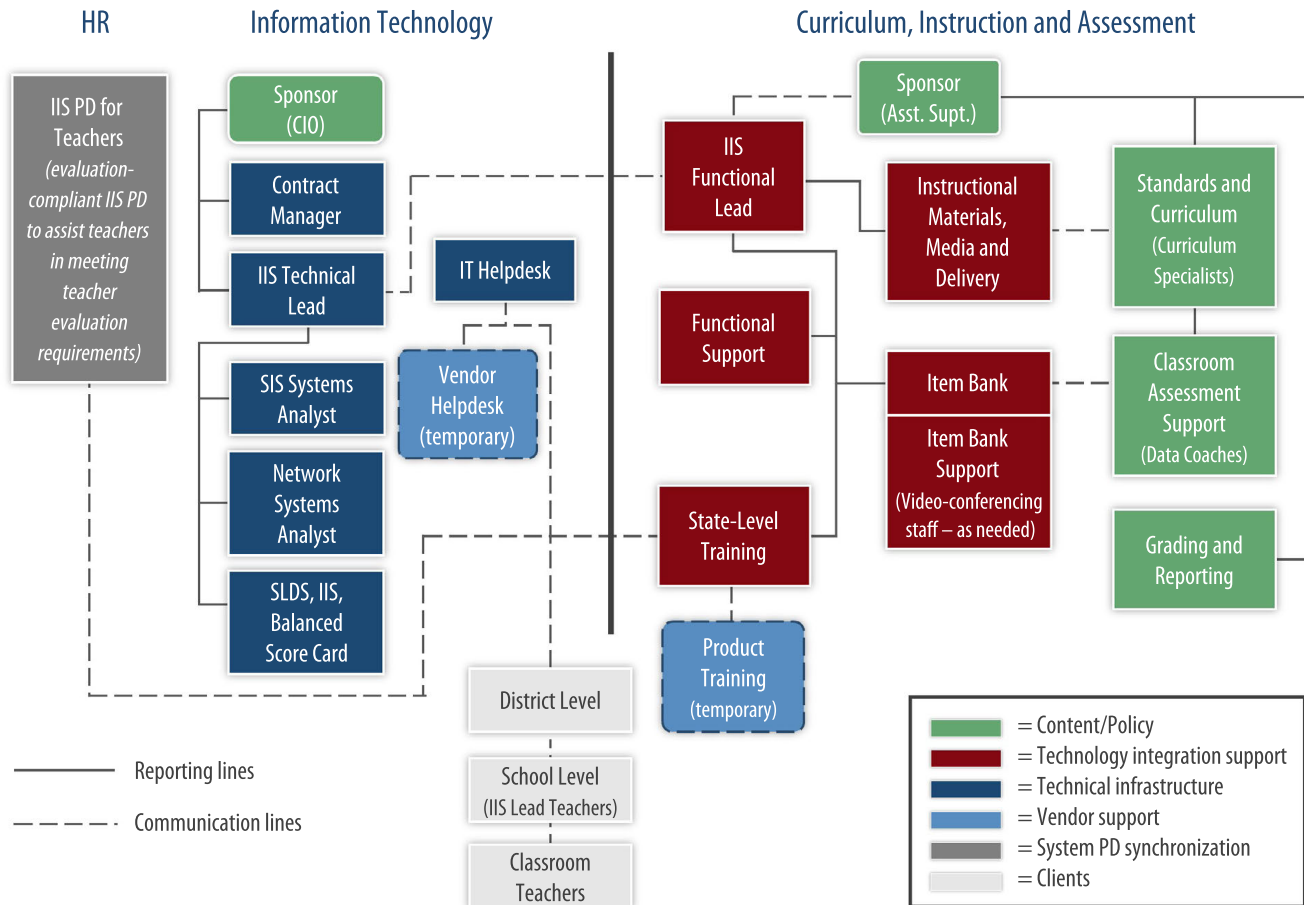
Identify Primary Instructional Processes

Once the SEA has set the metrics for assessing the IIS objectives, the agency is ready to identify the primary instructional processes that will make up the IIS scope of work. SEAs may consider beginning with the model IIS functions described in Figure 1.

Figure 4. Instructional Improvement System – Organizational Structure

HR   **Information Technology**   **Curriculum, Instruction and Assessment**

IIS PD for Teachers *(evaluation-compliant IIS PD to assist teachers in meeting teacher evaluation requirements)*

Sponsor (CIO)

Contract Manager

IIS Technical Lead

IT Helpdesk

SIS Systems Analyst

Vendor Helpdesk (temporary)

Network Systems Analyst

SLDS, IIS, Balanced Score Card

District Level

School Level (IIS Lead Teachers)

Classroom Teachers

Sponsor (Asst. Supt.)

IIS Functional Lead

Instructional Materials, Media and Delivery

Standards and Curriculum (Curriculum Specialists)

Functional Support

Item Bank

Classroom Assessment Support (Data Coaches)

Item Bank Support (Video-conferencing staff – as needed)

State-Level Training

Grading and Reporting

Product Training (temporary)

──── Reporting lines

‐ ‐ ‐ ‐ Communication lines

■ = Content/Policy
■ = Technology integration support
■ = Technical infrastructure
■ = Vendor support
■ = System PD synchronization
■ = Clients

Each function includes a core set of instructional processes that defines the work supported by the IIS. Many of these processes will span more than one entity. For example, the SEA, LEA and school would all have responsibilities within the standards and curriculum function. For this step, it is helpful simply to identify the entities that play a role in each function and instructional process and what that role is. In Step 4, these processes are documented, reviewed for effectiveness and improved when needed.

Allocate the Necessary Resources

The fourth step is to allocate sufficient resources to ensure the achievement of the IIS vision, objectives and goals. For many States, implementing an IIS requires a significant overhaul of the SEA, LEA and school systems. Some aspects of the initiative may require additional resources—such as hardware and software licensing—but repurposing existing fiscal and human resources may adequately support much

Step

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of the proposed IIS. An effective first step, especially for LEAs and schools, is to review all existing initiatives, programs and applications for redundancy within the IIS scope. By identifying redundant elements that could be phased out, the SEA reveals resources that could be reallocated to the IIS. Within the SEA, a comprehensive IIS implementation usually requires that many program and support offices that have not previously worked closely begin to do so. SEAs can review staffing across offices to highlight more potential capacity than examining them separately.

Allocating resources is an iterative step. All the entities involved in planning the IIS will return to this step periodically once a solution is selected, after the initial implementation of the IIS and annually thereafter. Each time, the SEA should review the resources previously identified and reassess what is required to achieve the IIS goals and ensure that it continues to meet user needs. The degree of uptake and usage, and the extent to which the scope may expand in subsequent phases, are typical factors to consider in the annual resource allocation review.

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Step 4: Plan Instructional Processes

The fourth step in the planning cycle is to define and document the primary instructional processes identified in Step 3, and, if necessary, revise existing processes and plans. Appendix E provides a summary of common instructional processes and sub-processes. This step is particularly important in the design of an IIS because it requires the SEA to develop coherent processes across programs, initiatives and organizational levels. Borrowing from effective process management activities in the private sector,[9] the design and planning of IIS processes in an educational setting should:

- reflect the requirements of students, parents, teachers and school leadership;

- define processes that serve those requirements and stakeholders;

- identify process owners and teams;

- map the process;

- establish measures;

- provide for sustainability; and

- develop and implement a plan to improve the process

Examples of Instructional Processes

- Develop curriculum

- Design effective instructional programs

- Assess student achievement and growth

- Develop and manage learner profiles

- Perform data analysis and reporting

- Develop and manage human capital

See Appendix E for additional details.

Step 4 Checklist

✓ Define the instructional and related processes that the IIS will support from the SEA into the classroom.

✓ Document each process, including the unit overseeing the process and the person responsible for it.

✓ Determine which data systems and applications currently support these processes in order to ensure that the IIS will feature identity management and a single sign-on.

✓ Identify the most important unmet needs in terms of the data to be provided and the functionality of applications that support the instructional processes.

SEAs begin process planning for the IIS when the instructional leaders on the project management team document how they currently do their work and improvements to be made to those processes through the application of IT.

The Council of Chief State School Officers (CCSSO) has also recognized the importance of the examination and documentation of key instructional processes. Through its Decision Support Architecture Consortium initiative, CCSSO has developed a process

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management framework, templates, tools and rubrics to design and plan instructional processes based on proven business methodologies, education best practices, and employing technology to support achievement. The CCSSO work is published at this link.[10]

Additionally, in the fall of 2012, the Reform Support Network (RSN) completed a high-level scan of six States that were planning or deploying an IIS. The purpose of the scan was to summarize SEA IIS models and share best practices. The IIS scan is available at this link.[11]

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Step 5: Do the Work

At this point in the planning cycle, the IIS team understands the vision for the IIS, their responsibilities, their measurable goals and how to accomplish their work. The current state of the SEA IIS will determine whether doing the work is (1) part of ongoing organizational activities and process improvement (that is, the IIS is developed and deployed); or (2) part of the implementation process and managed as a project, as is the case for a new IIS initiative. The language in this section of the guidebook assumes that the SEA has not yet deployed the IIS and is preparing to manage, or is managing, the IIS deployment as a project.

This section begins with a discussion of IIS project management and then describes the five phases of project management most commonly executed as part of an IIS deployment: initiation, planning and design, execution, monitoring and transitioning.

Project Management

The planning cycle organizes the agency's resources around the common vision and plans the work in a manner that facilitates continuous improvement. New initiatives, like an IIS, require a project management methodology to integrate new products, services or processes into an agency. It is a framework that helps a team of people clearly define the work they want to do, establish outcomes, organize the assigned resources around a set of outcomes and timelines, break the work into small components that can be frequently evaluated, and create a monitoring and reporting plan. Project management is particularly important in the planning and deployment of an IIS because of its breadth and complexity. Common features of entities engaged in project management include:

Step 5 Checklist

✓ Engage project management to oversee, organize and execute the work.

✓ Gather detailed requirements from the intended users regarding the data, reporting and functionality they need to support instruction.

✓ Roll out the system in a pilot or phased approach.

✓ Develop and carry out a communications plan tailored for specific audiences that describes the system capabilities and benefits and what is expected of user groups.

✓ Create and deliver professional development customized for specific user roles that addresses how to use the system and how the system supports instruction.

• **Project Management Office (PMO)** – A unit within the agency responsible for managing fixed duration implementations. PMO staff have specialized training and certifications in project management and typically include program managers, project managers and business analysts. The PMO may play a central role in the IIS planning and deployment,

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particularly in aligning efforts across the agency into commonly agreed upon system functions, supporting processes, roles and responsibilities.

- **Steering Committee** – Senior level managers who have an interest in the outcomes established during Step 3 provide their perspectives to the project team, particularly on the scope, outcomes and deliverables. The steering committee periodically meets with the project sponsor to receive updates and recommend ways to create maximum value for the agency. The steering committee may develop policy recommendations for project issues that cross or affect multiple organizational units.

- **Project Sponsor** – The leader and decision maker for the project team, who provides the vision and ensures the plan and resources are accurate, properly scoped and aligned to agency need. The sponsor attends project meetings to provide guidance and works across agency units to align efforts and resolve conflict. The project sponsor may have proposed the IIS initiative, may represent the team responsible for the IIS or may have been assigned by upper management to lead the project. In most cases, the sponsor is not from the technical team, but from the agency unit that wants the product or service to be implemented. (Because an IIS is an instructional initiative, the sponsor ideally represents instructional elements of the agency.) In the case of an IIS, the sponsor might be the chief State school officer, chief performance officer, director of Race to the Top grant activities or chief academic officer. To effectively support the IIS project, it is important that the IIS sponsor have broad knowledge of the SEA and LEA operations. The IIS can impact many portions of the agency, therefore a strong relationship between the project

Successful IIS project management teams have the following characteristics:

- The project sponsor, from a non-IT discipline, is empowered to make or influence decisions across the agency functions and units to drive the project to success.

- The project team has the members and authority to create coherence within instructional policy and procedure, particularly across the programs and processes the team uses to perform its work.

- The project is stakeholder-driven in both design and communication, incorporating a detailed understanding of the day-to-day responsibilities and practices of teachers.

- The team establishes and executes its work within designated timelines, delivery dates and performance criteria.

- Communication is a priority and recognized as critical to success.

- The team monitors and promotes coherence among new projects to fit into an overall blueprint of agency processes and structures. (Mature organizations may use enterprise architecture to guide these efforts.)

- The project team proactively manages procurement policies and practices to ensure that product and service purchases comply with the agency blueprint.

sponsor and the chief State school officer, and either formal or informal authority over the SEA program leads for issues related to the IIS project, will facilitate cross-program decisions needed for successful IIS implementation. Sponsors who benefit the project have excellent relationships with LEA administrators and teachers and experience guiding a broad set of stakeholders to consensus.

- **Project Manager (PM)** – Manager of the project team and responsible for documenting the project outcomes, scope, deliverables, timelines and resources. The PM organizes the resources assigned to the project into a team capable of creating the project deliverables. The PM develops the project plan, assigns resources to tasks and monitors completion against the timeline. The PM resolves issues outside the project's scope with the project sponsor. The PM ensures that the IIS is coordinated with the broader agency plan and, during the business analysis and deployment processes, translates user needs into an updated business architecture. This role includes documenting proposed future processes in comparison to current processes.

- **Project Team Members** – Staff members assigned to the IIS team have subject matter expertise within the project scope, often in instructional standards-based curriculum, assessment (particularly formative and benchmark), teacher certification, teacher evaluation, student information systems, instructional content, procurement, contracts, vendor management, business analysis, application development, security (authentication and authorization), database architect and database optimization. Team members include system users and IIS content and process subject matter experts.

This guidebook is not intended as a complete reference for project management and IIS design. New York State has published a comprehensive series of guidebooks on project management, available at this link.[12] In addition, the use of EEA principles may benefit the agency, as it creates a blueprint or visual map that defines which services the agency provides and the processes and IT resources deployed to create and deliver them. Because the IIS affects so many parts of the agency, the project sponsor and project manager benefit from the EEA perspective, to ensure the new processes fit within the desired user experience and current technology systems. Additional information on education enterprise architecture can be found in the *Education Enterprise Architecture Guidebook*, produced by the RSN.[13]

Project Initiation, Planning and Design

Project initiation is the first phase, during which the project sponsor, manager, team members and scope are established. This step begins with a kick-off meeting to bring the team members together, communicate the purpose of the project, identify team member roles and define how they will work together. Project charter and governance structures for the project are developed during this phase. The State of Washington produced a project charter for their statewide longitudinal data systems data warehouse, located at this link.[14] (This example of a charter, for a data warehouse, while not an entire IIS charter, does depict an important component of an IIS in regards to data analysis and reporting.)

The next phase of project management is to develop the project plan and design the IIS. During planning and design, the team creates business requirements,

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Table 1. Summary of Information Included in IIS Functional Requirements

Business specifications	These specifications define the system functionality. For the IIS model in this guidebook, the functions include the learner portfolio, standards and curriculum, instructional design and resources, assessment and growth, professional development and leader effectiveness. The business specifications describe what the system should do within each function for its users. Business specifications may include the types of information that users can see and describe how the IIS supports the daily activities of the people for whom it is designed, such as teachers.
Architectural overview	This overview defines how the IIS fits into SEA and LEA systems. It includes data integration needs, data governance needs, identity management integration and associated systems, such as learning object repositories.
Technical specifications	The technical requirements for the IIS include the system design, operating environment (for example, a hosted "Software as a Service" cloud), service levels, authentication and authorization.

documents functional requirements, develops a financial management plan, creates a human resources plan, establishes a project schedule and creates a risk management plan. This guidebook limits its discussion to those elements of planning and design most critical to an IIS, including the following:

Functional Design Requirements

A key step in the planning and development of the IIS is the creation of functional design requirements. This step uses the vision, strategies, organizational roles, stakeholder needs, instructional processes and other agency information developed in previous steps, and translates that information into a set of specifications for the IIS. These functional requirements are the foundation for the development of the system. The functional requirements provide the technical teams with the detailed information they need to create an IIS that fulfills user requirements in a manner that fits into the SEA architecture.

Table 1 summarizes the information included in the IIS functional requirements.[15]

Data Requirements

An IIS requires data that is more granular, frequently collected and instruction-focused than what most SEAs typically collect and manage. As a result, it is very important, not only that the SEA instructional program staff lead the identification of IIS data requirements, but that teachers and other stakeholders engage in the process as well. Because teachers are the primary users of these systems, incorporating their perspective directly into the identification of data requirements ensures that the information they need to support instruction is identified and defined. The data requirements documentation process consists of: (1) clarifying which data elements are already collected with a timeliness that could support the IIS core processes (current state); (2) identifying which new or revised data elements must be collected to support core processes; and (3) determining how those elements must interrelate to serve the intended users (future state).

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Ensuring data timeliness is an important objective of identifying IIS data requirements. SEAs have historically collected and updated data far less frequently than necessary to support an IIS. The SEA should identify the data it needs, its purposes, and the frequency of collection required by these purposes. It may not be necessary to redefine the collection of foundational data, such as enrollment and class assignments, but it might be necessary to increase the frequency with which data are gathered from districts and schools. Identifying and documenting these changes becomes part of the IIS design requirements.

Clear and consistent definitions are required for each data element. Currently, a number of organizations that establish data standards are collaborating to develop a structure that would support the integration of various data sets and standards and could potentially affect IIS design, configuration and population. The State Educational Technology Directors Association has published a summary of these efforts in *Transforming Data to Information in Service of Learning*, located at this link.[16]

Identity Management and Single Sign-On

Identity management is essential to the development of IIS stakeholder portals that integrate information across applications and organize it according to user needs. The management of websites and user names and passwords is a limiting factor in the adoption of new systems. Mature IIS functional requirements include a robust identity management architecture that manages user authentication and authorization outside of or between applications. A federated identity management architecture allows the SEA to establish a limited number of databases to manage user information and roles within the agency, authenticate users locally and manage user authorization centrally, across applications.

For example, the Georgia State Department of Education has deployed federated identity management that allows users to log into their student information system and navigate to other State applications without entering additional web addresses, user names or passwords. It has branded its concept "The Tunnel" to communicate its capacity as a secure and enclosed technology for the transmittal of user permissions. For more information, see this link.[17]

Protecting Data Privacy

With any comprehensive data system, the development of robust security policies and the technical infrastructure to protect the data is extremely important and part of system functional requirements. The development of safeguards to protect individual student and teacher data is imperative. SEA data access policies and associated security architecture are critical to protecting individualized data. At the same time, data security must be balanced with stakeholder ease of use to facilitate sustained system adoption.

Another step is to consider the legal and regulatory constraints on data collection and dissemination. It is important that the SEA develop and adopt a policy for protecting data security that complies with state and federal laws. The Federal government has passed the Family Educational Rights and Privacy Act (FERPA), the Health Insurance Portability and Accountability Act (HIPAA) and the Children's Online Privacy Protection Act (COPPA) to protect individuals from the misuse of data. An SEA benefits from consistent, comprehensive legal counsel regarding the State's interpretation of FERPA, HIPAA and COPPA as part of the system design process to ensure the resulting system complies.

FERPA protects the rights of students regarding the privacy of their educational records. HIPAA protects the privacy of individually identifiable health information. COPPA protects the privacy of children by requiring

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direct parental approval before a child's information can be collected, used, or disclosed. When designing an IIS, SEAs should protect the security of the data both in terms of external users and internal users. Questions to consider include:

1. What is the level of access to student data for different staff members (for example, district superintendent, LEA staff, school principal, vice principal, teacher, guidance counselor, special area teachers)?

2. Would the staff member in each role see all types of data?

   a. For instance, may the school nurse see educational records or only health records?

   b. May a teacher see data only about the students in his/her current class?

   c. May a teacher see data about past students?

3. What access to data do parents have?

4. What access to data do students have?

5. Who, outside of the school and LEA, may have access to individual data, and under what circumstances?

When providing access or data to researchers, digital learning providers or others outside of the school system, States must develop important safeguards to determine:

1. Whether the requester has a legal right to the data (check FERPA and HIPAA for clarification);

2. Whether the requester may receive (1) individually identifiable data; (2) data cleaned of personal information (for example, name, masking I.D. numbers) but that could be linked to that person by the originator of the data (de-identified data); or (3) anonymized data that can never be associated back to the individual; and

3. How to ensure that the data provided will be destroyed at the appropriate time.

If a requester has asked for data about a teacher and the students they taught, the SEA must take care not to provide any student information linked to that teacher in such a way as to identify any student, unless the requester has a legal right to such data.

When providing access to digital learning resources, SEAs, LEAs and schools consider the impact of the student information delivered to the digital learning provider. One example is the type of data that might be transferred between an IIS vendor and the digital content provider that populates the IIS with instructional material. If this functionality requires the transmittal of student data between two systems, a thorough review of data security is required. COPPA is also a regulatory constraint to include when developing agreements with vendors as part of an IIS design.

One resource for States, provided by the U.S. Department of Education, to utilize in the planning of an IIS and other data systems is the Privacy Technical Assistance Center (PTAC), which provides Federal guidance on privacy, confidentiality and security practices. PTAC works in close collaboration with the FERPA Working Group, which consists of representatives of the Office of Management and Budget, the Family Policy Compliance Office and the Office of General Counsel. The PTAC website is at this link.[18]

Digital Rights

In addition to the privacy rights of students, an SEA would be wise to consider digital rights when developing an IIS. When the IIS is in its infancy, SEAs may procure digital resources such as lesson plans, videos and assessments from vendors to include in the IIS. As the IIS capabilities expand, teachers may modify the lesson plans, videos and assessments to fit the needs of their classrooms. When this occurs,

SEAs should consult with legal counsel to determine the extent to which the materials and resources are copyrighted, the extent to which teachers may modify these resources and, once modified, who owns the rights to the resources.

During the IIS planning phase, the SEA may consult with legal counsel to determine whether teachers, schools or districts have the authority to develop or modify their own lesson plans, assessments and other digital resources. If they do, to what extent may they share with others across the State? The SEA can also create, publish and communicate policies regarding to whom the rights to the digital resources belong.

Infrastructure and Hosting

Planning the IIS technology infrastructure can be complex. The IIS pulls data from many sources, transmits information to multiple databases, interfaces with security applications and presents data within browsers and portals. To simplify planning, many agencies utilize conceptual models to describe the technical relationships among the domains that are part of their system design process. Conceptual models vary in complexity, ranging from the National Association of State Chief Information Officers (NASCIO) diagram (see Figure 5) to the complex Arizona Department of Education conceptual diagrams in Appendix F.

Data centers and software hosting are changing rapidly, with third-party hosting centers, cloud computing, server virtualization and software as a service dramatically changing the way that many IT organizations construct their systems. Often the IIS integrates with other SEA and third-party data systems. The infrastructure choices of the SEA and its vendors will influence the IIS hosting decision and overarching SEA technology architecture. As a result, robust IIS planning documents the systems architecture prior to the IIS deployment as well as the future architecture planned.

The State of Colorado Governor's Office of Information Technology published its data strategy in 2010. It contains a conceptual model within an overall planning document that includes its infrastructure plan at this **link**.[19]

Figure 5. Sample Technology Architecture Domains[20]
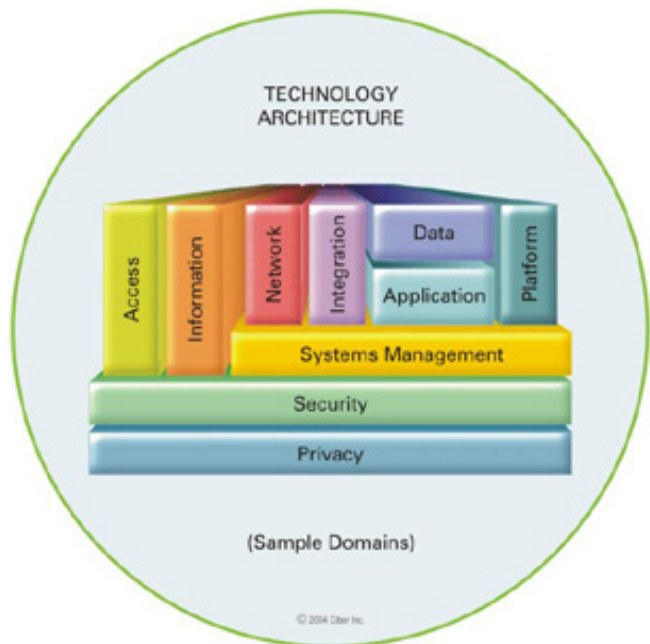
End-User Devices

How users perceive the value of the IIS depends upon the availability of adequate devices, software, connectivity and support to reliably and consistently connect to the IIS and utilize its functions. As a result, the IIS project team will need to incorporate planning and implementation of end-user computing devices into the overall IIS plan. Poor performance in any of these areas is usually attributed to the IIS rather than to the root cause of the issue and negatively influences how users perceive the value of the IIS. In addition to the computing devices of students and teachers, other classroom technologies—printers, scanners, interactive whiteboards—integrate with the IIS. Because these

technologies support the instructional processes managed by the IIS—scanning printed assessments or instructional tasks like homework, for example—they are integrated into the IIS planning, too. Broadband connectivity (from the building to the Internet) and wireless access (from the device to the building) are also considerations.

Maine Learning Technology Initiative

The Maine Learning Technology Initiative (MLTI) is an illuminating example of a comprehensive plan to provide students and teachers with end-user devices. MLTI was a joint procurement that involved Maine, Hawaii and Vermont, led by Maine and constructed so as to allow other States and districts to purchase devices through the agreement. Additional information on MLTI can be found at this link.[21]

Deployment Strategy and Statewide Scale

Because deploying the IIS involves a complex array of technical and non-technical activities, SEAs have found it prudent to plan deployment in increments. SEAs typically plan their district deployment schedule to start with a small set of districts and progress to more districts as the agency learns the IIS system and matures its capabilities to manage and support it. Most SEAs start small: some call this the "pilot" phase, others the "beta version," but the intent is to identify a small set of teachers and classrooms willing to test a system that they understand is new and may not work exactly as planned. The project team prepares the test group for outages, bad data, slow response times and other issues that might occur. It is best to set low expectations with these early adopters before

a large-scale deployment. This group is asked to utilize IIS functions, and the project team gathers information on system performance, identifying functionality that works well and areas that need improvement. After completing the beta or pilot plan, the SEA may continue the system deployment plan through a series of small-scale deployments to incorporate the lessons learned from the smaller group and to obtain additional feedback. These progressively larger deployments may include full system functionality or segments of planned system functionality. Some States limit the scope of their IIS functionality. Kentucky deployed the IIS statewide with Common Core State Standards (CCSS) functionality and later added additional IIS capabilities in a structured manner with coordinated professional development. Other States began with full functionality for a pilot group of school districts and subsequently deployed the system in additional districts.

In every phase of deployment, the IIS must offer definitive value and communicate that value effectively to system users, and so it is important to collect data during the pilot that will gauge the value and utility of the proposed IIS. If the system is deployed before issues such as functional limitations or loading of insufficient or untimely data are resolved, stakeholders will not use it. For this reason, delaying system deployment until its features and functions meet stakeholder needs is usually more conducive to long-term system adoption.

Communications Plan

The success of the IIS project depends upon effective communication of the IIS vision, goals, functionality, implementation plans and time frames to all stakeholders. The IIS project team is the communications hub, coordinating communications across the agency to ensure that effectively constructed and timely messages reach each

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stakeholder. These communications should outline the system capabilities and benefits planned for each stakeholder group, with examples of the benefits intended for teaching and learning. Messaging customized to each user group will increase awareness and adoption.

The communications plan generally includes the following:

1. Determine target audiences – Who are the stakeholders you need to reach?

2. Develop messages specific to the audience – What information do they want or need, and what do you want them to hear?

3. Establish how you want to reach them – Paper, Website, email, video.

4. Develop materials – Videos and brochures with key messages matched to the delivery mechanism.

5. Create placement plans and timelines – Scheduling face-to-face presentations and email blasts.

The IIS will affect many user groups and audiences, each with specific interests in system functionality and its potential benefits in their classrooms, support units and governing bodies.

The IIS communications plan may adopt various methods to customize messaging to all these audiences. For example, teachers are often difficult to reach during day-time hours and holidays; delivering communications immediately before or after the school day through standard communication channels—posters in the break room or leadership talks on in-service days—may be most effective. Meeting preparation materials or scheduled presentations may be the most effective ways to deliver information to school board members.

The audiences that SEAs most commonly identify for their IIS projects are:

Inside SEA

- Chief State School Officer
- IIS leadership group
- IIS project director, coordinator, analyst and project manager
- IIS business requirements workgroup
- IIS technical requirements workgroup
- Agency programs
- Cross-pillar teams
- Financial and business services

Outside SEA

- Governor's office
- District administrators
- Schools (teachers and staff)
- Students and parents
- School board members
- Citizens of the school district or State
- Higher education teachers and administrators
- Preparation programs
- Other collaborating agencies

Some of the key messages that increase the effectiveness of communications plans are reports on IIS development progression (for example, reaching established milestones), current functionality, adoption and utilization achievements (for example, pilot district outcomes, number of users), updates

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on known system bugs and planned IIS events (for example, trainings). Project teams have used these methods to coordinate the team and communicate to stakeholders:

- Regularly scheduled, face-to-face meetings for project team members, with conference calls between meetings when necessary

- Regularly scheduled reports to the project sponsor and other key influencers of project success which include information on progress toward project milestones, critical issues and risks

- A project team portal or intranet to share updates, key delivery dates and so forth

- Presentations to district administrators, principals and teachers during their association meetings

- Public Web pages on the organization's Website that are specific to the IIS and each of its major audiences

- Electronic newsletters based on subscriber preferences

Appendix G offers a sample communications planning document.

Professional Development

Professional development (PD) for IIS users is vital, particularly to successfully integrate IIS functionality into teaching and pedagogical practices. PD offers teachers and other users the skills and knowledge to navigate and integrate the system into their work. The project team bases the PD plan on the IIS vision and creates measures and targets to monitor the PD's effectiveness and impact on classroom practices.

The SEA may identify and modify its policies, procedures and practices that influence instructor behavior in order to encourage and support IIS integration into teaching practices. For example:

Communication strategies that build trust during the IIS planning and implementation include these common characteristics:

- Messages are consistent and clear.

- The leadership team sets and communicates realistic and honest expectations.

- The project team and senior leadership encourage multidirectional communication to capture user concerns and feedback.

- The project team proactively monitors and addresses user concerns, fears and obstacles.

- The agency and its vendor(s) collaboratively develop communications materials.

- All staff members associated with the project communicate consistent messages.

- The project team customizes and targets its communications to specific audiences.

- The project team monitors and modifies communication strategies to maximize effectiveness.

- The project team modifies communication tools and resources as the project progresses, matching messages to system development, functional capabilities and stakeholder concerns.

1. The State may modify teaching standards to reflect the skills and knowledge required for IIS use and pedagogical integration.

2. The SEA may establish clear expectations by modifying position descriptions to reflect the skills and knowledge required for IIS use and pedagogical integration.

3. The SEA may ensure that performance management plans include measures and targets that reflect the degree to which teachers and administrators integrate the IIS into their practices.

4. Assessments of instructional materials may include measurement of IIS use and sharing of lessons and other curricula.

5. The PD curriculum may teach skills and knowledge for IIS technology and pedagogical integration.

6. The SEA may modify hiring and evaluation processes to include the ability to integrate the IIS into instructional and administrative practices.

7. The training and support materials document repository (for example, enterprise knowledge base) may reflect IIS practices.

Analysis of other initiatives that compete for PD time is a critical step in the PD planning process. SEA programs compete for the limited time of teachers and administrators, and IIS PD training offers an excellent opportunity to integrate trainings across multiple PD initiatives.

Many SEAs hire vendors, including institutions of higher education (IHEs), to conduct PD. Ensuring that these vendors use the IIS as their presentation method multiplies the instructional team's experience with the IIS and reinforces its capacity as a helpful instructional tool. Some IHEs plan to deploy a training version of the IIS in their teacher preparation programs to ensure that new teachers enter the classroom prepared to use it. Contracting PD to those IHEs may provide a greater return on investment because their in-house expertise could be leveraged into the development of a PD curriculum.

The scope of the PD curriculum begins with basic computer skills and progresses to effective pedagogical practices within an IIS and onto custom report generation to measure and trend instructional outcomes. The IIS curriculum is usually aligned to the interactions that users have with the system—like the roles of teacher and student—with scaffolding specific to the scope of the system functionality that the user is expected to learn over time, starting with the basics and progressing to higher levels of complexity. For example, all users need to understand how to log onto the system and conduct basic navigation, but an assessment director may not need PD focused on creating instructional materials.

Appendix H contains one example of a PD curriculum.

Successful SEAs take into consideration the time constraints of teachers and leaders and develop a mix of delivery mechanisms, including face-to-face and Web-based instruction. Short videos of IIS functionality are effective because teachers can more easily devote 20 or 30 minutes to learning new material than an entire day away from the classroom for face-to-face training. Ohio, Kentucky, Florida and Maine have published their comprehensive PD plans, which other SEAs may find informative (see callout box).[22]

The State of Ohio has published IIS training videos and other materials on the Internet; the video is available at this **link**. Ohio's comprehensive professional development plan is also available and published at this **link**.

The Kentucky Department of Education has developed an online training Website with IIS training videos and other training resources; it is located at this **link**.

The Florida Department of Education has also published its PD work at several links: **one**, **two**, and **three**.

The Maine Department of Education has published its Professional Development Model at this **link**.

Maine has taken a very comprehensive approach to PD, developing a model based upon work the State has done to integrate technology into the classroom as part of its Maine Learning Technology Initiative.

Support Systems

As a comprehensive information system, the IIS requires a support system to encourage stakeholders to adopt the IIS and integrate its functionality into their roles and instructional practices. Because the IIS is designed for classroom use as an instructional material delivery platform, issues that might be minor for another IT system—for example, a log-in issue—may have a greater impact when they occur during instructional time. Rapid support team response to user issues is vital to encouraging system adoption.

Initiating the support function during the pilot stage tests the IIS governance plan. As teachers, students and principals contact the support desk during the phased deployment, issues will arise that are not related to the IT system, but rather to content or the organizational process. The support desk requires a process to identify and resolve both types of issues and direct user issues appropriately.

Executing the Project

The execution phase of the project is the time during which people perform the tasks to which they were assigned during the planning process. Actions that take place during this phase include:

• assembling the project execution team;

• assigning human, financial, technology and other resources to the project;

• assigning tasks to the staff members on the team;

• reviewing and updating the project schedule to reflect the most recent information; and

• accepting project deliverables as they are completed according to specifications.

After the IT team documents the business and functional requirements, it will determine whether to build the application and supporting systems in-house or use commercially available systems. In many cases, the agency's traditional perspective on systems and efficiency for meeting customer requirements will influence this decision. IT organizations typically plan their system designs around a long-term approach to technology system development, either through internally built and managed systems or through the integration of commercial off-the-shelf (COTS) applications.

A number of factors may influence this decision for the IIS, such as the organizational strategies and business needs previously noted during the planning cycle:

• The vision and process needs identified by the process owners

• The data needs identified by the data owners

• The agency's staffing, technical expertise and support capacity

• A review of current COTS capabilities against the functional requirements

• A comparison of the total costs for each option

Questions that the project team may consider in deciding either to purchase or develop a system (often referred to as the buy-build decision) include the following:

1. Does an existing commercial product demonstrate that it fulfills the functional requirements?

2. Do project managers, lead architects, software developers and quality assurance personnel have the system development expertise?

3. Does the lead time permit the internal development of a system?

4. What is the total cost of ownership, particularly ongoing maintenance costs for services provided by commercial vendors versus the estimated internal maintenance costs?

5. How does the SEA's financial and political sustainability compare to that of potential vendors? Could the agency recover from the loss of key personnel and/or budgetary restrictions? Are potential vendors viable long-term to reliably support the product over the desired product life cycle?

6. Could the COTS applications integrate well into the agency's architecture, and, if so, at what expense?

7. Does the vendor have the ability to tailor the COTS over time to educator feedback and/or enhance its functionality, and if so, at the vendor's expense?

Monitoring the Project

A formal governance structure monitors the progress of the project as a mechanism to raise and resolve issues. The California Office of Systems Integration Best Practices Website contains reference materials to which SEAs may refer in developing their own monitoring governance structures (see this link[23]),

including the sample governance structure in Appendix I. California suggests a structure, led by an executive steering committee, which coordinates other governance groups to manage a portfolio of projects.

A less complex organization could manage its projects through a project management oversight committee. The important concept is a formal structure to monitor the work, report on its progress and apply the appropriate resources through an escalation process to maintain project timelines, deliverables and scope.

Transitioning the IIS

The IIS project closes upon successful deployment of the system, marking the transition of IIS responsibility from the project team to the SEA's operational units. The team completes its preparation for project close as part of the transition from the pilot phase to deployment. The team works with the SEA governing bodies to develop a transition plan to transfer IIS authority from the project management team. At this time, the agency's IIS blueprint or program map should be updated with changes resulting from the IIS development and deployment.

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Step 6: Review Results

In Steps 2 through 4 of planning and implementation, the agency translated its vision into strategic objectives and measures that were cascaded to every operating unit and staff member throughout the agency. In Step 5, people and governing bodies performed the work that was planned. Now, in Step 6, the outcomes of the work are reviewed and compared to the measurement targets established during Step 3. Review processes are part of the agency's governance structure, with those entities responsible for each outcome scheduling a review of outcomes as part of its regularly scheduled meetings. The review process for operations outcomes includes managers, directors and program staff. The SEA leadership team usually completes strategic reviews.

IIS operational results reviewed in this step include items such as system response time and data quality. Operational issues generally have short-term resolution within current project scope. Strategic results reviewed may include user satisfaction survey results, number of active users versus goals and the number of instructional resources created. Resolution of strategic issues requires upper management involvement and potentially, policy, system functionality and/or contractual changes.

Step 6 Checklist

✓ For each relevant agency program area, assess and compare the outcomes to the measures of progress and success established during Step 3.

✓ Identify key factors that contributed to the current outcomes.

✓ Create an action plan to address any key factors that have caused gaps between expected and actual outcomes.

Action plans created in Step 6 are formulated within the confines of the current strategic initiatives and agency resources as defined by budgets and other planning tools. To modify agency structures, initiatives or statutes, a governing body would request further analysis and strategic recommendations, which take place during Step 7.

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Step 7: Analyze and Recommend

Step 7 is a thorough analysis of the root causes of IIS performance outcomes. In this step the strategic leadership team reviews IIS performance against the objectives identified during Step 2 for achievement against the strategic goals and cost effectiveness. The leadership team employs subject matter experts to analyze the outcomes, document causes and recommend strategic shifts that could positively influence performance. For the IIS, this might include an analysis of the root cause of low-system usage, with teacher feedback used to develop recommendations for the modification of SEA budgets and regulations (for example, adjustments to professional development policies and programs). The outcomes analysis might also include an examination of system feature usage to determine whether to modify system functionality and create the required regulatory or strategic planning changes.

The team also analyzes the issues identified by governance bodies, discussed in Step 6, which could not be improved within the current strategic environment and associated resources and policy. Analytical tools, such as return on investment and program evaluations, are completed during this step, providing a detailed analysis of performance outcomes and potential strategies for improvement. Based on the analysis, the strategic leadership team creates recommendations for strategic change during the next planning cycle intended to improve performance outcomes or increase efficiencies.

Step 7 Checklist

Executive leadership:

✓ Reviews performance on the objectives established during Step 2 that are related to the strategic goals and cost effectiveness/return on investment.

✓ Examines the issues identified and the action plans created by agencies and program areas during Step 6.

✓ Assesses vendor performance, system usage and user feedback.

✓ Creates recommendations to improve outcomes and/or increase efficiencies as part of the SEA's next planning cycle.

Section 4. Conclusion

Although the volume of knowledge is expanding exponentially, the ways in which we deliver knowledge to our students and teachers has remained relatively stagnant. The introduction of an IIS has accelerated the design and deployment of technology in some States to help teachers, students and other stakeholders modernize the way they work and achieve the productivity gains other industries have realized through the adoption of technology. However, as other industries have experienced, technology alone cannot improve work outcomes; people and processes contribute also.

This guidebook suggests the benefits of developing a formal strategic and operational planning methodology to design, deploy and operate the IIS. The breadth of an IIS makes it impossible to discuss all the facets of developing and managing such a system, so this guidebook has focused on suggesting a methodology to create coherence and highlight key issues that SEAs currently deploying an IIS have found important. The planning and implementation methodology outlined in this guidebook uses a cycle that begins with the establishment of a vision for the SEA. It also communicates the importance of strong project management methodologies to integrate new agency initiatives into current information systems.

This guidebook closes with an example of how one State used the IIS model presented here (see Figure 1) to reconfigure its instructional management system (IMS), due to an unexpected challenge in the midst of design. Through a process of analysis and alignment, the Rhode Island Department of Education reached alternative solutions that would preserve the goals and desired functionality of its IMS.

Rhode Island Department of Education Instructional Management System

In the fall of 2013, the efforts of the Rhode Island Department of Education (RIDE) to institute an instructional management system (IMS) were in jeopardy because of the loss of a key IMS component (i.e., their repository of interim district assessment data). To identify alternative strategies and cost-effective solutions that could be implemented within the time available, RIDE engaged in a careful analysis and review of the current IMS, its goals and desired functionality and the impact of the loss of the component, with the assistance of experts from the Reform Support Network (RSN).

RSN experts, using the comprehensive Instructional Improvement System model presented in this guidebook (see Figure 1) as a reference, aligned to RIDE's requirements for its IMS, organized and identified the key system components and functions (that is, standards and curriculum; instructional design, practice and resources; assessment and growth; professional development for teacher and leader effectiveness; learner profile and artifacts; and data analysis and reporting) affected by the loss. Major findings emerged for these system components and functions, including:

- Standards and Curriculum: RIDE has worked with districts for more than five years to establish a collaborative model of curriculum development and sharing. The replacement application therefore requires the capacity to allow multi-district consortia to write curriculum collaboratively.

- Assessment and Growth: The link to assessment information was set up through the single sign-on. Any new system will need to integrate with that sign-on.

RIDE identified alternative strategies and solutions, determined which would be viable and provided a general strategy for addressing the needs identified. Alternate strategies and solutions included open source solutions, application sharing with other States/organizations and the identification of similar applications. Potential pros and cons for each strategy were discussed, from which RIDE's data and analysis office decided to implement open software and license-free solutions available through other SEAs, such as Arizona, Georgia, and Tennessee.

Endnotes

[1] For those seeking technical information about data systems implementation, the National Forum on Education Statistics *Traveling Through Time* series discusses longitudinal data systems. Much of this can inform the technical components of IIS development or procurement. The first of four books can be found at this link: http://nces.ed.gov/pubs2010/2010805.pdf. National Forum on Education Statistics, *Traveling Through Time: The Forum Guide to Longitudinal Data Systems. Book I: What is an LDS?* (Washington, DC: National Center for Education Statistics, 2010).

[2] U.S. Department of Education, *Race to the Top Executive Summary*. (Washington, DC: U.S. Department of Education, November 2009), 13. http://www2.ed.gov/programs/racetothetop/executive-summary.pdf

[3] Robert S. Kaplan and David P. Norton, *The Execution Premium: Linking Strategy to Operations for Competitive Advantage* (Watertown, MA: Harvard Business School Publishing Corporation, 2008).

[4] Baldrige Performance Excellence Center, *2013–2014 Education Criteria for Performance Excellence*. (Washington, DC: National Institute of Standards and Technology, 2014). http://www.nist.gov/baldrige/enter/education.cfm.

[5] Blaine R. Worthen, James R. Sanders, and Jody L. Fitzpatrick, *Program Evaluation: Alternative Approaches and Practical Guidelines*, 4th ed. (New Jersey: Pearson, 2010).

[6] Robert S. Kaplan and David P. Norton, *The Execution Premium: Linking Strategy to Operations for Competitive Advantage* (Watertown, MA: Harvard Business School Publishing Corporation, 2008), 61.

[7] Reform Support Network, *Education Enterprise Architecture Guidebook* (Washington, DC: Reform Support Network, 2014).

[8] National Association of State Chief Information Officers, *NASCIO Enterprise Architecture Development Tool-Kit* Business Architecture, Version 3.0 (Kentucky: National Association of State Chief Information Officers, 2004), 10. http://www.nascio.org/publications/documents/NASCIO-EAToolKit-BusinessArchitecture.pdf.

[9] Stephen George and Arnold Weimerskirch, *Total Quality Management* (New York, NY: John Wiley and Sons, 1994), 157.

[10] Council of Chief State School Officers, *DSAC II Process Guide*, CCSSO/CELT Decision Support Architecture Consortium (DSAC II) (Washington, DC: Council of Chief State School Officers, 2009), http://www.sde.ct.gov/sde/lib/sde/pdf/cali/interview_manual.pdf.

[11] Reform Support Network, *The View from the States: A Brief on Instructional Improvement System Strategies and Approaches* (Washington, DC: Reform Support Network, 2013), http://www2.ed.gov/about/inits/ed/implementation-support-unit/tech-assist/instructional-improvement-strategies-approaches.pdf.

[12] New York State Office for Technology, *Project Management Guidebook*, Release 2 (New York, NY: New York State Office for Technology, 2003), http://its.ny.gov/pmmp/guidebook2/index.htm.

[13] Reform Support Network, *Education Enterprise Architecture Guidebook* (Washington, DC: Reform Support Network, 2014).

[14] State of Washington, *P-20 Data Warehouse Project: Project Charter*, Version 1.5 (Washington: State of Washington, 2011), http://www.erdc.wa.gov/arraslds2009/p20_program/charters/pdf/data_warehouse.pdf.

[15] Florida, Massachusetts, North Carolina, and Ohio have comprehensively documented IIS functional requirements and made them publicly available:

Florida Department of Education, Race to the Top Local Instructional Improvement Systems, https://www.fldoe.org/arra/LIISMS.asp.

Massachusetts Department of Elementary and Secondary Education, Edwin Teaching & Learning: An Instructional Improvement System, http://www.doe.mass.edu/edwin/tls/.

North Carolina Department of Public Instruction, About the Instructional Improvement System, http://www.ncpublicschools.org/homebase/improvement/about/.

Ohio Department of Education, Ohio IIS – Instructional Improvement System, http://education.ohio.gov/Topics/School-Improvement/Diagnostic-Review/Ohio-IIS-%E2%80%93-Instructional-Improvement-System.

The RSN has also published documentation that outlines IIS functionality, based on its 2012 scan of six States: Reform Support Network, *The View from the States: A Brief on Instructional Improvement System Strategies and Approaches* (Washington, DC: Reform Support Network, 2013), available at http://www2.ed.gov/about/inits/ed/implementation-support-unit/tech-assist/instructional-improvement-strategies-approaches.pdf.

[16] Christine Fox, Schaffhauser, D., Fletcher, G., & Levin, D., *Transforming Data to Information in Service of Learning* (Washington, DC: State Educational Technology Directors Association), 2013, http://www.setda.org/wp-content/uploads/2013/11/Data-to-Information.pdf.

[17] Georgia State Department of Education Portal Website, http://www.gadoe.org/Technology-Services/SLDS/Pages/Contact-and-Connect.aspx.

[18] Privacy Technical Assistance Center Website, http://ptac.ed.gov/.

[19] State of Colorado Governor's Office of Information Technology, *State of Colorado Data Strategy* (Colorado: Governor's Office of Information Technology, 2010).

[20] National Association of State Chief Information Officers, *NASCIO Enterprise Architecture Development Tool-Kit*, Version 3.0 (Kentucky: National Association of State Chief Information Officers, 2008), 6, http://www.nascio.org/publications/documents/NASCIO-AEADTool-Kitv3.pdf.

[21] Maine Learning Technology Initiative Website, http://www.state.me.us/mlti/.

[22] Website links to State Professional Development standards and programs for IIS Users:

   a. Ohio Department of Education: Instructional Improvement System (IIS) Webinar 3, https://www.youtube.com/watch?v=5kNJcdv4k2c; and Ohio Standards for Professional Development, http://education.ohio.gov/getattachment/Topics/Teaching/Educator-Equity/Ohio-s-Educator-Standards/StandardsProfDev_sept07.pdf.aspx.

   b. Kentucky Department of Education, Continuous Instructional Improvement Technology System (CIITS) training, http://education.ky.gov/districts/tech/ciits/Pages/CIITS-Training.aspx.

   c. Florida Department of Education: District Professional Development Elements, http://www.fldoe.org/profdev/cklist.asp; Professional Development in Florida, http://www.fldoe.org/profdev/inserv.asp; Professional Development System Evaluation Protocol, http://www.fldoe.org/profdev/pdf/pdsprotocol.pdf.

   d. Maine Department of Education, The Maine Professional Development Model, http://www.maine.gov/education/achievingresults/.

[23] California Office of Systems Integration Best Practices Website, http://www.bestpractices.osi.ca.gov/sysacq/governance_framework.shtml.

Appendix A. Checklist of Key Steps in the Planning and Implementation Cycle

Step 1: Create the Vision

☐ Develop a clear, well-communicated IIS vision that fits within the broader vision of the SEA and LEAs.

☐ Appoint an instructional leader to sponsor the IIS.

☐ Establish instructional perspectives as the foundation of the IIS vision.

☐ Ensure that the needs of key stakeholders drive IIS planning, design and implementation.

Step 2: Plan the Strategy

☐ Translate the vision into strategic objectives and measures of progress and targets.

☐ Identify the few critical activities that the SEA must do well to achieve the objectives.

☐ Examine all SEA and LEA program areas that affect instruction.

Step 3: Align the Agency

☐ Vertically and horizontally align objectives for each agency, program area and key role involved in the IIS.

☐ Define key metrics (in line with the measures created in Step 2) to gauge success for each organizational level and each individual in a key role.

☐ Identify the primary instructional processes that the IIS will support.

☐ Allocate the necessary resources (fiscal and human) to support the defined objectives and processes.

Step 4: Plan Instructional Processes

☐ Define the instructional and related processes that the IIS will support from the SEA into the classroom.

☐ Document each process, including the unit overseeing the process and the person responsible for it.

☐ Determine which data systems and applications currently support these processes in order to ensure that the IIS will feature identity management and a single sign-on.

☐ Identify the most important unmet needs in terms of the data to be provided and the functionality of applications that support the instructional processes.

Step 5: Do the Work

☐ Engage project management to oversee, organize and execute the work.

☐ Gather detailed requirements from the intended users regarding the data, reporting and functionality they need to support instruction.

☐ Roll out the system in a pilot or phased approach.

☐ Develop and carry out a communications plan tailored for specific audiences that describes the system capabilities and benefits and what is expected of user groups.

☐ Create and deliver professional development customized for specific user roles that addresses (1) how to use the system; and (2) how the system supports instruction.

Step 6: Review Results

☐ For each relevant agency program area, assess and compare the outcomes to the measures of progress and success established during Step 3.

☐ Identify key factors that contributed to the current outcomes.

☐ Create an action plan to address any key factors that have caused gaps between expected and actual outcomes.

Step 7: Analyze and Recommend

Executive leadership:

☐ Reviews performance on the objectives established during Step 2 that are related to the strategic goals and cost effectiveness/return on investment.

☐ Examines the issues identified and the action plans created by agencies and program areas during Step 6.

☐ Assesses vendor performance, system usage and user feedback.

☐ Creates recommendations to improve outcomes and/or increase efficiencies as part of the SEA's next planning cycle.

Appendix B. Stakeholders and Potential IIS Impacts

Teachers	Teachers are primary stakeholders of the IIS. Teachers can benefit from an IIS through the tracking of near-real-time achievement levels of students so they can adjust instructional strategies for each student. With the use of an IIS, teachers are in a position to efficiently access students' information in near real-time and select individualized resources to support instruction and interventions for their students.
Students	Students are the other primary stakeholder group. An IIS can help maximize student learning capabilities and facilitate their proactive engagement in their own learning. It can increase student interest in learning materials through the delivery of multimedia content that has been aligned to standards and learning objectives and is relevant to their interests and abilities.
Parents	The IIS can effectively engage parents in student learning. Through an IIS, parents can access important information about their child's performance in a manner understandable to them. The IIS can also provide parents with access to vetted digital resources aligned to their child's learning needs as outlined in his or her learning plan with information on the concepts mastered and those not mastered.
Principals	Principals are instructional leaders at the school in addition to all their other job duties. With the large amount of student, teacher and curriculum information maintained in the IIS, it can be an excellent system to deliver information to principals in a manner that matches their diverse set of duties.
District Superintendents	An IIS can assist superintendents in the fulfillment of their duties, particularly in the areas of strategic planning, budgeting, resource allocation and policy analysis. An IIS supports superintendents in their monitoring of instructional effectiveness and learning trends, with the ability to relate them to district practices and faculty capabilities.
SEA Program Leads	Program leads can benefit from an IIS through the high volume of near-real-time performance data that can be related to their programs, communication tools, analytics and process and workflow management. Utilizing these types of functions, the IIS can play a key role in the gathering, analysis and presentation of program outcome data, including the production of comparative reports regarding the incremental learning produced by programs.
School Board Members/ Trustees	Trustees wield great influence over their district's educational outcomes, but generally dedicate limited time to school board business. The IIS can support trustees by making data accessible 24/7.
Legislators	Legislators participate in the establishment of State goals, strategic initiatives, financial resources and human resources for the SEA and other State agencies. The benefits of the IIS to legislators vary widely and depend upon the State information system architecture and the information system capabilities it supports.

Appendix C. Hawaii's Curriculum Development/Learning Management System (CDLMS) Vision

Integrated Learning Enterprise System
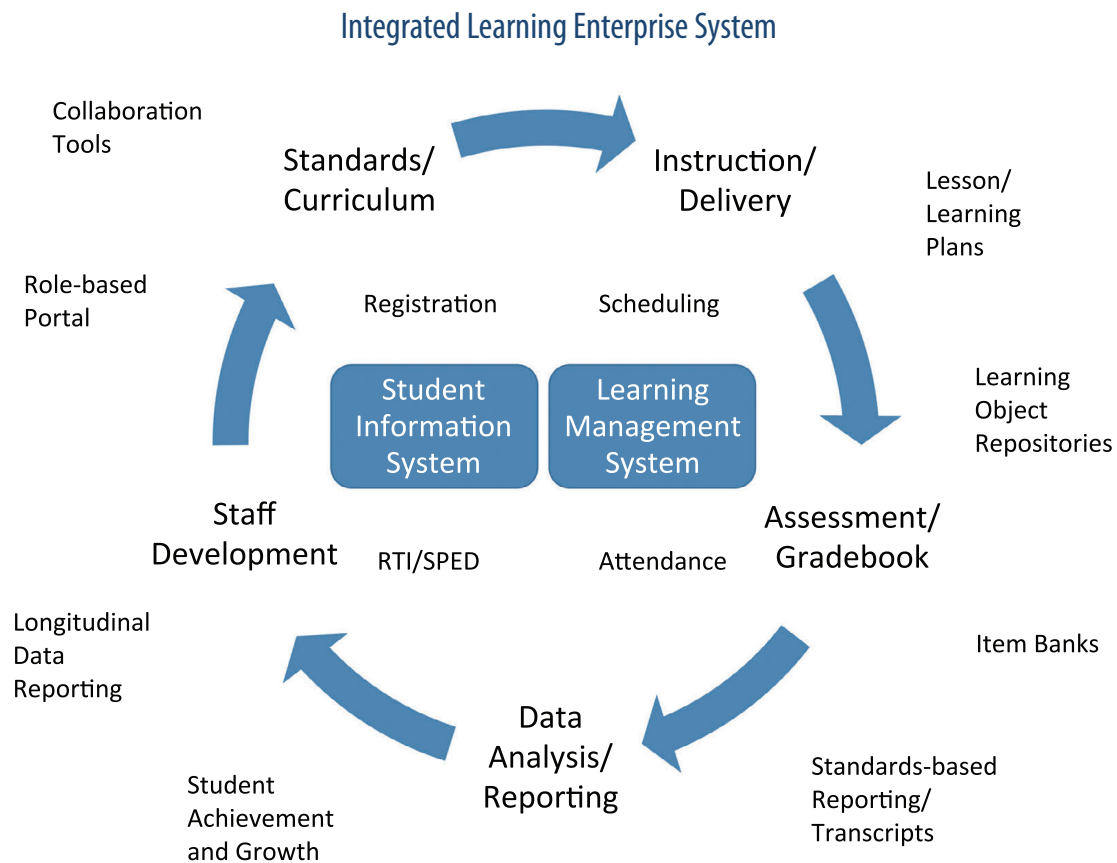
Note: Hawaii's Integrated Learning Enterprise System consolidates the traditional Student Information System, Special Education System, Response to Intervention System, Curriculum/Content Management System, Learning Management System and IIS into one enterprise application.

Source: State of Hawaii Department of Education, Request for Information RFI D13-054 Learning Enterprise System, 2012, http://spo3.hawaii.gov/notices/notices/rfi-d13-054/getfile?filename=rfi-d13-054-learning-enterprise-system.pdf.

Appendix D. North Carolina IIS Vision

PUBLIC SCHOOLS OF NORTH CAROLINA
DEPARTMENT OF PUBLIC INSTRUCTION | June St. Clair Atkinson, Ed.D., *State Superintendent*
WWW.NCPUBLICSCHOOLS.ORG

INSTRUCTIONAL IMPROVEMENT SYSTEM (IIS)

VISION

All North Carolina students, parents, and educators will have equitable access to information and resources they need to make ongoing decisions about individualized teaching and/or learning.

MISSION

To support the teaching and learning process, the Instructional Improvement System will be an online platform that will provide: data visualizations and analytics, links between content, assessment, and standards; student profile and work samples; an assessment management and delivery system; assessment items (summative, benchmark, diagnostic); formative assessment strategies; a professional development management tool and educator evaluation functionality; and portal pages for students, teachers, and parents.

GOALS

Goal 1: Instruction and Learning Support
The IIS will provide educators with tools and resources to plan and deliver individualized, rich, standards-aligned lessons to their students. The IIS will also provide students and parents access to standards-aligned learning resources.

Goal 2: Assessment
The IIS will provide educators with tools to create, align, deliver, and manage student assessments on a variety of levels. The IIS will also provide students and teachers with formative assessment strategies to facilitate the daily monitoring of student progress.

Goal 3: Data Analysis and Reporting
The IIS will provide students, parents, and educators with customizable dashboards and reporting tools to view useful information on students and their performance against standards.

Goal 4: Educator Evaluation and Professional Development
The IIS will provide educators a system through which they can complete required educator evaluation processes and select, register for, participate in, and track their professional development.

Goal 5: Profiles and Work Samples
The IIS will provide students and educators with profile pages and space for them to store standards-aligned samples of their work.

LEARNING SYSTEMS
Sarah McManus, Ph.D., *Director of Learning Systems* | smcmanus@dpi.state.nc.us
6307 Mail Service Center, Raleigh, North Carolina 27699-6307 | (919) 807-3776 | Fax (919) 807- 3290
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

Source: Public Schools of North Carolina Department of Public Instruction, Instructional Improvement System (IIS). http://www.ncpublicschools.org/docs/homebase/improvement/about/vision-goals.pdf.

Appendix E. Elements of Instructional Processes

This summary of common educational processes and sub-processes may inform the agency's design and planning of an IIS.

| |
|---|
| **1. Develop curriculum** |
| 1.1. Define/design curriculum development procedures |
| 1.2. Align with State/local standards |
| 1.3. Provide for key customer and stakeholder input |
| 1.4. Develop scope/sequence/timeline (curriculum maps) |
| 1.5. Develop instructional calendars/pacing guides/local assessments (grade-level expectations) |
| 1.6. Select instructional resources (identify standards-based resources) |
| 1.7. Pilot the curriculum (curriculum review) |
| 1.8. Implement the curriculum |
| 1.9. Monitor integrity of curriculum implementation |
| **2. Design effective instructional programs** |
| 2.1. Use diagnostics to determine readiness to learn |
| 2.2. Identify best practices based on data |
| 2.3. Establish best practice instructional strategies |
| 2.4. Develop an implementation plan |
| 2.5. Determine expectation for lesson design (learning maps, Universal Design for Learning, Response to Intervention) |
| 2.6. Provide differentiated instruction based on individual student needs (personalized, blended, etcetera) |
| 2.7. Align after school and summer program curriculum |
| 2.8. Design instructional programs to accelerate learning for students below grade-level standards |
| 2.9. Support instructional collaboration (teacher, parent, student) |
| **3. Assess student achievement and growth** |
| 3.1. Plan district assessment program |
| 3.2. Develop/administer formative assessment tools (develop/manage assessment item bank) |
| 3.3. Develop/administer interim assessments |
| 3.4. Administer summative assessments |
| 3.5. Score and compile assessment data |
| **4. Develop and manage learner profiles** |
| 4.1. Consolidate learner information from all systems |
| 4.2. Provide role-based access to all information |
| **5. Perform data analysis and reporting** |
| 5.1. Analyze and evaluate assessment results |
| 5.2. Provide training to staff, students and parents on analyzing and using data |
| 5.3. Report assessment results to students, stakeholders and district leadership |
| **6. Develop and manage human capital** |
| 6.1. Manage employee performance |
| 6.2. Manage employee development (plan and establish professional development opportunities) |
| 6.3. Develop and train employees (manage teacher competencies) |

Source: Center for Educational Leadership and Technology, Process to Application Map. June 7, 2013.

Appendix F. Arizona Conceptual Model
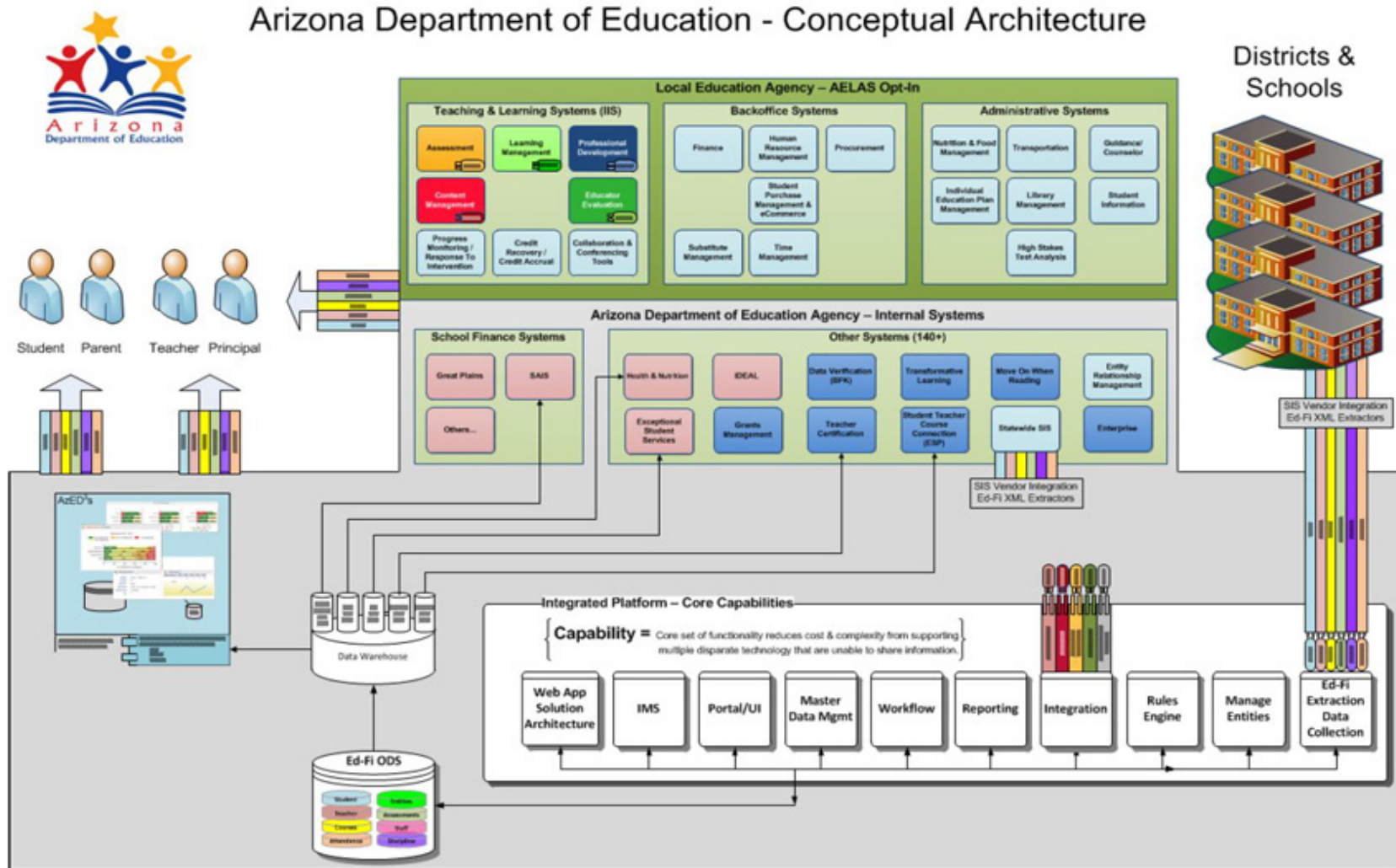
Arizona Department of Education, *Arizona Education Learning and Accountability System (AELAS) Business Case: "Preparing Arizona Students for College and Career Success,"* http://www.azed.gov/aelas/files/2013/10/aelas-business-case-v1.5.pdf.

Appendix G. Communications Plan

Communication Protocol

Listed below is a sample IIS communications protocol list for the various audiences identified.
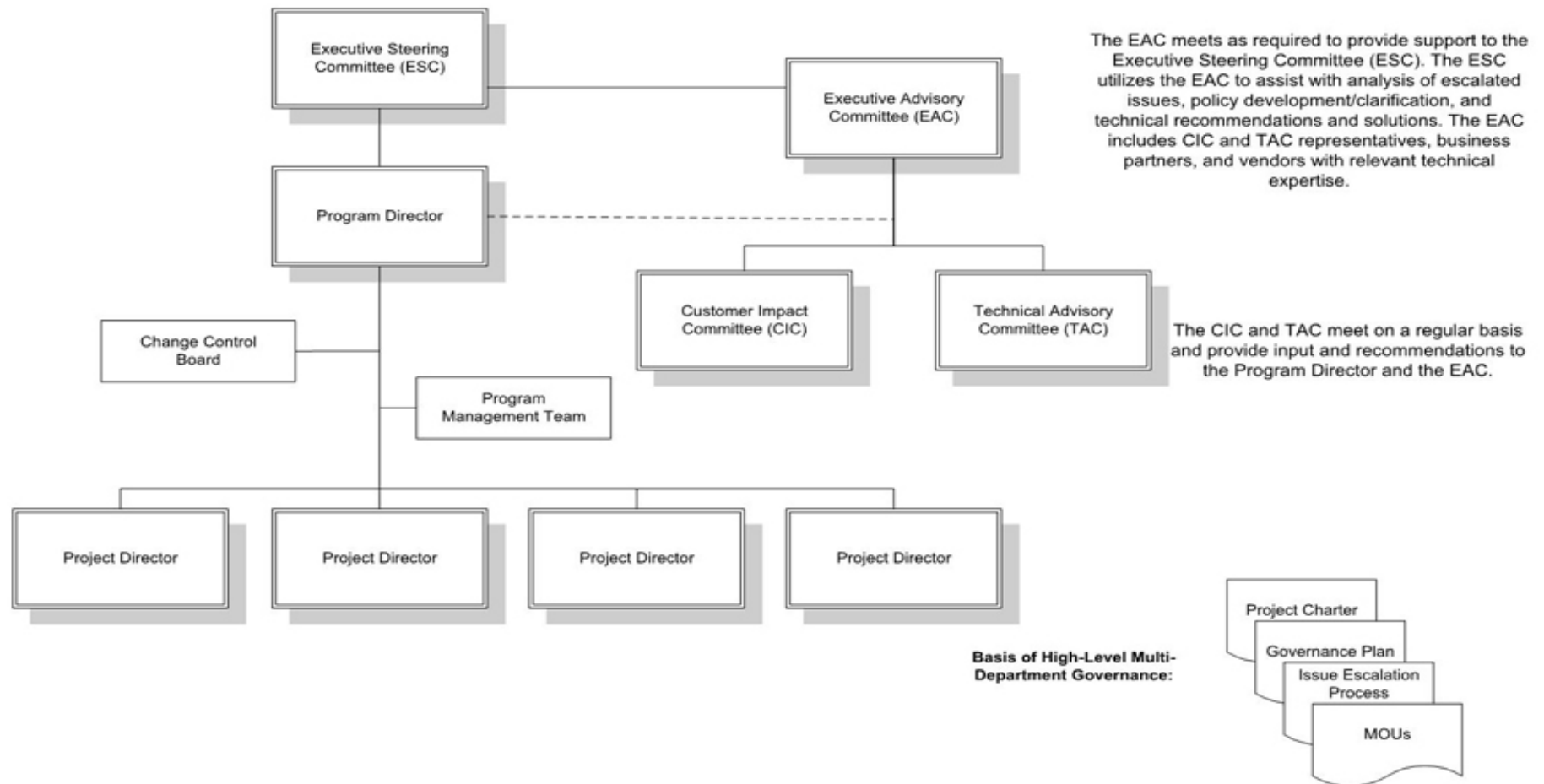
Audience	Key Message	Desired Outcome	Date to Issue Communication	Method of Communication	Person Responsible
Project Sponsor and IIS Leadership Group	Project status	To keep sponsor informed of progress and issues	Bi-weekly	Live	Project director
Project Managers/ Coordinators	Weekly project updates	To ensure that tasks are being completed on schedule and issues are identified and addressed quickly	Weekly	Live, phone, email, web-conference	Project team members
IIS Business Requirements Workgroup	Updates on requirements progress	To review and rate draft requirements for inclusion in RFP	TBD–based upon project schedule	Focus groups, Excel spreadsheet	Project director, coordinator and vendor project manager
	Business requirements update	Review of requirements following interviews and focus groups	TBD–based upon project schedule	Email, Excel spreadsheet	Vendor project manager
IIS Technical Requirements Workgroup	Updates on requirements progress	To review and rate draft requirements for inclusion in RFP	TBD–based upon project schedule	Focus groups, Excel spreadsheet	Project director, coordinator and vendor IT manager
	Technical requirements updates	Final set of technical specifications for IIS RFP	TBD–based upon project schedule	Periodic meetings	Vendor project manager and technical lead
Programs, Race to the Top Cross-Pillar Team	Project status	To keep group informed of progress and issues	Ongoing	Live	Project director
District Administrators Teachers, Regional Staff	Introduction of the IIS vision and project timelines	Understanding and acceptance of project goals; feedback	Ongoing	Project abstract	Project coordinator
	Additional project detail	Additional information regarding business requirements for the RFP	TBD–based upon project schedule	PowerPoint presentation at regional meetings	Project team
Students and Parents	Project vision and status	Understanding and acceptance of project goals	TBD–based upon project schedule	Focus group	Vendor project team
Union Representatives, State School Board Representatives, State PTA	Project vision and status	Understanding and acceptance of project goals	TBD–based upon project schedule	Focus group	Vendor project team
Citizens of the District or State	Project vision	Understanding and acceptance of project goals	TBD–based upon project schedule	Organization's Website	Communications director

Source: Center for Educational Leadership and Technology, Communication Protocol. May 20, 2013.

Appendix H. Professional Development Curriculum Example

Title	Target Audience	Level	Details and Prerequisites
Basics	All users	100	Fundamentals of IIS: how to create an account, how to log in, navigation through primary user screens, how to read the information on each screen.
Standards and Curriculum	Teachers	100	Utilizing standards, curriculum (scope and sequence) in the IIS. View only access covered in this class; see curriculum director course for the creation and input of curriculum. IIS Basics is a prerequisite.
Instructional Design and Digital Resources	Teachers and curriculum directors	100	Digital material resources, searching for materials by standards and other content tags (for example, grade, Blooms taxonomy), digital lessons, lesson evaluation process (student, teacher and outcomes data), introduction to formative assessments and use, and evaluation of lesson effectiveness and student subject mastery.
Administrative Functions of IIS	Principals	400	Usage report creation and use, lesson plan review and promotion, student achievement and growth reports, standards taught report, key performance indicators and balanced scorecard metrics, account creation and role provisioning. IIS Basics is a prerequisite.
IIS-Based Pedagogy	Teacher	400	How to integrate digital materials stored in the IIS into pedagogical practices, such as use of presentation software to create lessons, incorporation of digital video into lessons, using real-time student feedback to adjust daily lessons, establishing learning targets for small group break outs.

Appendix I. Project Management Governance Example

The EAC meets as required to provide support to the Executive Steering Committee (ESC). The ESC utilizes the EAC to assist with analysis of escalated issues, policy development/clarification, and technical recommendations and solutions. The EAC includes CIC and TAC representatives, business partners, and vendors with relevant technical expertise.

The CIC and TAC meet on a regular basis and provide input and recommendations to the Program Director and the EAC.

Basis of High-Level Multi-Department Governance:
- Project Charter
- Governance Plan
- Issue Escalation Process
- MOUs

Source: The California Office of Systems Integration Best Practices Website. http://www.bestpractices.osi.ca.gov/sysacq/documents/Program%20Governance%20chart%20sample.vsd.

Reform Support Network